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87th Congress, 2d Session - - - - - House Report No. 1754

NATIONAL FALLOUT SHELTER PROGRAM

SIXTEENTH REPORT

BY THE

COMMITTEE ON GOVERNMENT OPERATIONS

MAY 31, 1962.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

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LETTER OF TRANSMITTAL

HOUSE OF REPRESENTATIVES,
Washington, D.C., May 31, 1961.

Hon. JOHN MCCORMACK,
Speaker of the House of Representatives,
Washington, D.C.

DEAR MR. SPEAKER: By direction of the Committee on Government Operations, I submit herewith the committee's sixteenth report to the 87th Congress. The committee's report is based on a study made by its Military Operations Subcommittee.

WILLIAM L. DAWSON, *Chairman.*

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MAY 31, 1962.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. DAWSON, from the Committee on Government Operations, submitted the following

SIXTEENTH REPORT

BASED ON A STUDY BY THE MILITARY OPERATIONS SUBCOMMITTEE

On May 24, 1962, the Committee on Government Operations had before it for consideration a report entitled, "National Fallout Shelter Program." Upon motion made and seconded, the report was approved and adopted as the report of the full committee. The chairman was directed to transmit a copy to the Speaker of the House.

I. INTRODUCTION

This is the committee's eighth formal report on civil defense.[1] It is based on public hearings held by the Military Operations Subcommittee on February 19, 20, 21, 23, 26, and 27, 1962, and on supplemental information. Studies and investigations by the subcommittee in the civil defense field have been continuing since 1955.

The main purpose of the 1962 hearings, Subcommittee Chairman Holifield explained in an opening statement, was to examine Department of Defense operations in civil defense under Executive Order 10952 promulgated by President Kennedy on July 20, 1961.[2] This

[1] The following committee reports on civil defense previously have been issued:
"New Civil Defense Program," H. Rept. 1249, 87th Cong., 1st sess., submitted Sept. 21, 1961.
"Civil Defense Shelter Policy and Postattack Recovery Planning," H. Rept. 2069, 86th Cong., 2d sess., submitted July 1, 1960.
"Civil Defense in Western Europe and the Soviet Union," H. Rept. 300, 86th Cong., 1st sess., submitted Apr. 27, 1959.
"Atomic Shelter Programs," H. Rept. 2554, 85th Cong., 2d sess., submitted Aug. 12, 1958.
"Analysis of Civil Defense Reorganization (Reorganization Plan No. 1 of 1958)," H. Rept. 1874, 85th Cong., 2d sess., submitted June 12, 1958.
"Status of Civil Defense Legislation," H. Rept. 839, 85th Cong., 1st sess., submitted July 22, 1957.
"Civil Defense for National Survival," H. Rept. 2946, 84th Cong., 2d sess., submitted July 27, 1956.
Of these reports only H. Rept. 1249 (87th Cong., 1st sess.) and H. Rept. 2069 (86th Cong., 2d sess.) are available in the committee or subcommittee office.

[2] 26 F.R. 6604.

order transferred major civil defense responsibilities from the Office of Civil and Defense Mobilization to the Department of Defense, while OCDM was reconstituted as the Office of Emergency Planning.

Following Executive Order 10952, President Kennedy promulgated Executive Order 10958 on August 14, 1961, which transferred food and medical stockpiling responsibilities to, respectively, the Departments of Agriculture and Health, Education, and Welfare.[3]

In this series of hearings, witnesses from the three aforementioned departments were heard. Also, the subcommittee received testimony from the Chairman of the Advisory Committee on Civil Defense of the National Academy of Sciences, which renders important technical advisory services to the Government.

Later hearings will review the operations of the Office of Emergency Planning and other Federal departments and agencies concerned with related civil defense or emergency preparedness functions performed under recent Executive orders.[4]

Shortly after President Kennedy announced the reorganization of civil defense last summer, the Military Operations Subcommittee held hearings and prepared a report which was approved by the full committee and submitted to the Congress under date of September 21, 1961.[5] The report contained an evaluation of the new Federal civil defense program, then in its preliminary stages, which Secretary of Defense Robert S. McNamara and supporting witnesses outlined in testimony to the subcommittee.[6]

In the months which passed since the subcommittee's hearings of last August, the Department of Defense established an Office of Civil Defense, which has acquired a staff and developed some experience in executing its civil defense assignment. The committee decided, in the interest of better congressional and public understanding of the new civil defense program, to update its earlier report.

COMMENTARY ON PREVIOUS REPORT

The committee notes, in this connection, that House Report No. 1249 received wide acclaim and was in great demand by Members of Congress, Government agencies, local civil defense organizations, business firms, citizens' groups, and individuals.

The value of House Report No. 1249 to Department of Defense operations was stressed by the Honorable Steuart L. Pittman, Assistant Secretary of Defense for Civil Defense. He stated to the subcommittee: [7]

[3] 26 F.R. 7571.

[4] The following nine executive orders assigning emergency preparedness functions to Federal departments and agencies were issued on Feb. 16, 1962:
Executive Order 10997 (27 F.R. 1522) to the Secretary of the Interior.
Executive Order 10998 (27 F.R. 1524) to the Secretary of Agriculture.
Executive Order 10999 (27 F.R. 1527) to the Secretary of Commerce.
Executive Order 11000 (27 F.R. 1532) to the Secretary of Labor.
Executive Order 11001 (27 F.R. 1534) to the Secretary of Health, Education, and Welfare.
Executive Order 11002 (27 F.R. 1539) to the Postmaster General.
Executive Order 11003 (27 F.R. 1540) to the Administrator of the Federal Aviation Agency.
Executive Order 11004 (27 F.R. 1542) to the Housing and Home Finance Administrator.
Executive Order 11005 (27 F.R. 1544) to the Interstate Commerce Commission.
The nine Executive orders are reprinted in "Civil Defense—1962," hearings before a subcommittee o the Committee on Government Operations, House of Representatives, 87th Cong., 2d sess. (hereinafter cited as 1962 hearings), part II, appendix 9C, p. 617. The subcommittee understands that additional Executive orders will be forthcoming in the near future, including an Executive order which redefines the functions of the Office of Emergency Planning.

[5] H. Rept. 1249, 87th Cong., 1st sess.

[6] "Civil Defense—1961," hearings before a subcommittee of the Committee on Government Operations, House of Representatives, 87th Cong., 1st sess. (hereinafter cited as 1961 hearings).

[7] 1962 hearings, p. 3. Commentary on H. Rept 1249 by other Federal departments and agencies is printed as app. 14 of the 1962 hearings (pt. II), pp. 705 ff.

> I assumed my duties at about the time this report was made available. I had unfortunately spent 10 solid days in an intensive effort to educate myself on the problems of past and prospective Federal civil defense programs before I came upon this report. It cut through the morass and gave me a unique insight into the problems I was about to confront. It has been required reading for every new member of my staff.

Mr. Pittman also acknowledged his "debt to this committee for its earlier investigations into civil defense programs." He noted that while the committee's recommendations, in certain respects, went "beyond the immediate objectives of the President's program," the committee's findings were carefully studied by responsible Government authorities and to a certain extent had become "cornerstones" of the new program.[8]

LIST OF WITNESSES

The following witnesses were heard by the subcommittee:

Office of Civil Defense, Department of Defense:
- Hon. Steuart L. Pittman, Assistant Secretary of Defense for Civil Defense.
- Paul Visher, Deputy Assistant Secretary of Defense for Civil Defense.
- Walmer E. Strope, Director of Research.
- Joseph Romm, Director of Plans and Programs.
- William P. Durkee, Director for Federal Assistance.
- Troy McKinney, Comptroller.
- Robert E. Holt, Executive Assistant.
- Neal FitzSimons, Director, Protective Structures Division.
- James E. Roembke, Director, Architectural and Engineering Development Division.
- Alfred P. Miller, Director, Communications and Warning Division.
- Robert W. Blake, Director, Support Division, Office of Technical Operations.
- George D. McCarthy, Director, Shelter Survey Division.
- John W. McConnell, Director, Division of Regional Coordination.

Office, Chief of Engineers, Department of the Army:
- Col. Andrew D. Chaffin, Jr., Chief, Joint Civil Defense Support Group, Military Construction Directorate.

Department of Agriculture:
- Robert S. Reed, Special Assistant to the Secretary of Agriculture.
- Dr. Frank Todd, Assistant to the Administrator, Agricultural Research Service.
- George Walter, Assistant on Defense, Office of the Secretary.
- L. H. Manwaring, Director, Food and Materials Division, Agricultural Stabilization and Conservation Service.

[8] 1962 hearings, p. 3.

Department of Health, Education, and Welfare:
- Dean A. Snyder, Defense Coordinator, Office of the Secretary.
- Dr. James M. Hundley, Assistant Surgeon General, Public Health Service.
- Dr. Carruth J. Wagner, Chief, Division of Health Mobilization, Public Health Service.
- David S. Brunson, Chief, Stockpile Management Branch, Public Health Service.
- Shelbey T. Grey, Director, Bureau of Program Planning and Appraisal and Defense Representative, Food and Drug Administration.
- Dr. Wayne O. Reed, Deputy Commissioner of Education, Office of Education.
- Dr. Arthur L. Harris, Director of Field Services and Defense Representative, Office of Education.
- Dr. John Cameron, Chief, School Housing Section, Office of Education.

National Academy of Sciences:
- Dr. Lauriston S. Taylor, Chairman, Civil Defense Advisory Committee of the National Academy of Sciences; and Chief, Radiation Physics Division, National Bureau of Standards, Department of Commerce.
- Richard Park, Technical Director of the Advisory Committee on Civil Defense.

II. ORGANIZATION FOR CIVIL DEFENSE

PRELIMINARY STEPS

Upon receiving the civil defense assignment by Executive Order 10952, Secretary McNamara directed his Special Assistant, Adam Yarmolinsky, to take temporary charge of civil defense affairs and to establish an Office of Civil Defense. This interim exercise of authority, starting August 1, 1961, was to be in effect "pending the early appointment of an individual to be responsible for civil defense functions assigned to the Department of Defense." [9]

A month later, the Office of Civil Defense was formally established by departmental directive, and Mr. Pittman, then a member of a Washington, D.C., law firm, was nominated to head the office.[10] Secretary McNamara had decided that the new office rated one of the Assistant Secretary positions created by the National Security Act of 1947, as amended. Accordingly, Mr. Pittman, who was confirmed by the Senate on September 15, 1961, has the formal title of Assistant Secretary of Defense (Civil Defense). He holds, by redelegation, the statutory responsibilities vested by law in the President of the United States and delegated to the Secretary of Defense by Executive Order 10952.[11]

BUDGET AND STAFF

The first appropriation for the Office of Civil Defense was made for fiscal year 1962. It consisted of $207.6 million requested by the President in a special message to the Congress, and $47.3 million transferred from the Office of Civil and Defense Mobilization, a total of approximately $255 million.

Along with a portion of OCDM funds, the Office of Civil Defense acquired the Battle Creek center, eight regional offices, and certain other facilities of OCDM.

According to Assistant Secretary Pittman, 1,106 of the 1,650 employees carried on the OCDM payrolls at the time of the splitup were transferred to the Office of Civil Defense. Of these 1,106 employees, 41 were in Washington, 554 in operational headquarters at Battle Creek, 427 in the 8 regional offices, and 84 in field training centers or other positions.[12]

The administration's budget request for civil defense for fiscal year 1963 totals $695 million, of which $460 million is earmarked for a shelter incentive program. Major components of the shelter program will be described in following pages. In summary form, program

[9] "Interim Organization and Operation of the Office of Civil Defense Within the Department of Defense," memorandum by the Secretary of Defense dated July 31, 1961 (26 F.R. 7840). See 1962 hearings, pt. II, app. 15, p. 716.

[10] Assistant Secretary Pittman's biographical data are in the 1962 hearings, pp. 56–57.

[11] Department of Defense Directive No. 5140.1 dated Aug. 31, 1961, and supplemented Jan. 20, 1962; "Delegation of Administrative Authorities for Civil Defense Functions," memorandum dated Sept. 2, 1961, by the Deputy Secretary of Defense (26 F.R. 8604). The pertinent documents are reprinted in the 1962 hearings, pt. II, app. 15, pp. 717–720.

[12] 1962 hearings, p. 259.

costs for fiscal years 1962 and 1963 are reflected in the President's budget document as follows:

Program category	Fiscal year 1962 (planned obligations)	Fiscal year 1963 (proposed)
Shelter survey, marking, and stockage	$140,055,470	$56,000,000
Shelter incentive program		460,000,000
Shelter in Federal buildings	17,500,000	35,000,000
Warning and detection [1]	26,868,112	46,160,000
Emergency operations [2]	22,522,109	33,485,000
Financial assistance to States and localities	21,185,799	32,000,000
Management [3]	12,235,712	14,600,000
Research	15,484,834	17,755,000
Total	255,852,036	695.000,000

[1] Involves costs for a system of attack warning, including indoor warning, and for purchase and maintenance of instruments for radiological monitoring.
[2] Involves costs for maintaining a nationwide civil communications system of leased teletype and telephone lines with radio backup for use in a national emergency; updating and improving methods for rapid damage assessment following an attack; and civil defense training and public information programs.
[3] Involves costs of salaries, travel and other administrative expenses for 1,100 employees located at Office of Civil Defense headquarters, regional offices, and training schools.

TRANSFER FROM BATTLE CREEK

In the interest of better integration of civil defense and other Department of Defense activities, it was decided at an early date to make Washington, D.C., rather than Battle Creek the national headquarters for civil defense. Announcement of this decision was held up until, in Assistant Secretary Pittman's words, "a sensible plan could be worked out to use the excellent facilities at Battle Creek for other Defense Department activities." This would enable civil defense employees to size up new job opportunities in Battle Creek or make plans for relocation.

In the meantime, plans were made by the Department of Defense to move the Defense Logistics Services Center of the Defense Supply Agency from Washington, D.C., to Battle Creek, and the headquarters of the VI U.S. Army Corps from Indianapolis to Battle Creek. These moves would involve approximately 850 persons and be completed in June–July 1962.

A rather difficult period of employee uncertainty was ended by the public announcement of the transfer plans on December 5, 1961. The Battle Creek headquarters employees (554) were given the option, commensurate with their skills and the availability of positions in their specialties, to transfer to Washington, D.C. By early April, when this report was written, 108 persons had made the move from Battle Creek. Approximately 240, if they chose, would move by June 30.

In the meantime, a small staff of some 42 persons recruited from other government and outside sources, served as a nucleus for developing a new civil defense program and completing the organization of the Office of Civil Defense.

USE OF EXISTING STAFF

While there were new faces and fresh talent in the top staff recruited by Assistant Secretary Pittman, he made it plain that there would be no sweeping replacement of civil defense personnel. Though there was a sizable number of employees who would be unable or unwilling

to move, Assistant Secretary Pittman quickly concluded that there was competence, dedication, and a fund of valuable experience in OCDM transferees which would, in a new and more favorable setting for civil defense work, be highly useful and productive.[13]

A ceiling of 448 persons in Washington headquarters and 600 persons in the 8 regional offices has been established. Another 100 employees are in field training centers and field warning offices. In arranging the internal organization of the Office of Civil Defense, Assistant Secretary Pittman said that he sought to avoid the "excess of superstructure" which characterized the predecessor (OCDM) organization. Responsibility is fixed at national headquarters for about 20 units—both operating divisions and staff offices.[14]

CIVILIAN EMPHASIS

In keeping with the concept of the essentially civilian nature of civil defense, which President Kennedy and Secretary McNamara have emphasized, the 1,148 (authorized) personnel of the Office of Civil Defense are all civilians with the exception of 3 military officers. However, close liaison and coordination are maintained with other Department of Defense units and activities such as those headed by the Director of Research and Engineering, the Assistant Secretaries for related fields of interest, the Joint Chiefs of Staff and the Secretaries of the military departments.

An important role is assigned to the regional offices in civil defense operations. They will be empowered to commit Federal funds in the matching and shelter incentive programs, with review by Washington headquarters only in special cases. Regional offices will be staffed with persons technically competent to advise and assist State-local civil defense organizations in necessary planning and participation in programs relating to shelters, radiological monitoring, warning, and communications. Regional offices, as presently staffed, range in number of employees from 41 to 58.[15]

DEFENSE AGENCY ASSIGNMENTS

Enjoined by his charter to "utilize to the maximum extent the existing facilities of the Department of Defense in lieu of duplicating special facilities in his office", Assistant Secretary Pittman calls upon assorted defense agencies for research, analytical studies and administrative support activities. These agencies include:

Army Corps of Engineers for awarding and administering (in conjunction with Navy Bureau of Yards and Docks) contracts to architect-engineer firms in the nationwide shelter survey and for developing simple construction techniques for shelters.

Defense Supply Agency for procurement, receipt, storage, and issue of shelter supplies to State and local governments, as well as stockpiling of radiological monitoring or certain other civil defense equipment.

Defense Communications Agency for planning and operating civil defense communications networks.

Defense Atomic Support Agency for basic data and technical advice on nuclear weapon effects.

[13] 1962 hearings, p. 260.
[14] 1962 hearings, p. 260. An organizational chart depicting these arrangements is in pt. II, app. 15.
[15] 1962 hearings, pp. 217, 260.

Weapons Systems Evaluation Group, a unit under the Directorate of Defense Research and Engineering, for special studies and analyses of civil defense under varying attack assumptions.

Office of the Assistant Secretary of Defense (Public Affairs) for handling certain public information activities in the civil defense field.

Offices of the General Counsel of the Department of Defense and the Special Assistant for Legislative Affairs for legal and legislative liaison services.

Adjutant General's Office of the Army for printing and distributing civil defense literature.

Army Finance Office for handling the payroll, time, and records of the entire Office of Civil Defense, headquarters and field offices.

Army Chemical Corps for studies of decontamination techniques, air filters and diffusion board studies, and protective gas masks.

Army Signal Corps for procurement, supervision and installation of radio equipment for civil defense.

Naval Radiological Defense Laboratory for radiological reclamation studies for civil defense.

Naval Research Laboratory for studies on vital air components.

To defray the administrative costs of contracting services in the national shelter survey, the Corps of Engineers and the Bureau of Yards and Docks receive a 7-percent fee from the Office of Civil Defense. Other Department of Defense support activities are financed by reimbursement from civil defense funds or as part of normal operations.[16]

OTHER FEDERAL AGENCY ASSIGNMENTS

By law and policy, the Office of Civil Defense is enjoined also to use the resources and capabilities of other Federal departments and agencies.[17] This is done by executing contracts and allocating funds for specific projects and services.

It became necessary to sort out civil defense functions from those delegated to Federal agencies by OCDM under emergency preparedness orders, so that Department of Defense funding could be arranged. Eight departments or agencies have work orders aggregating $1,668,600, broken down as follows: [18]

Department of Health, Education, and Welfare: $858,000 to develop standards, survey local capabilities, and prepare guidance materials in the areas of emergency health and welfare.

Department of Labor: $378,000 to plan and test for a survey of local capabilities to meet civil defense manpower requirements, identify and inventory essential civil defense skills, and extend projects for preattack enrollment of skilled persons for civil defense activities.

Department of Commerce: $225,000 to forecast fallout and provide meteorological advisory services.

Department of Agriculture: $75,000 to develop guidance material and provide consultant services on rural fire defense, provisioning of shelters, food protection and decontamination, food reserves, and rural defense information and education.

[16] 1962 hearings, pp. 268–269.

[17] See H. Rept. 1249, 87th Cong., 1st sess., p. 11.

[18] Department of Defense funding was for the last three-quarters of fiscal year 1962 except for the Post Office Department, which received an advance from the Department of Defense for the whole year.

Federal Aviation Agency: $70,000 to develop tables of organization and equipment and measures for decontamination and emergency use of civil aviation repair facilities and airports, prepare guidance materials, and evaluate facility readiness.

Housing and Home Finance Agency: $49,000 to provide information on Federal insurance of loans for shelter construction, prepare guidance materials on local provision of emergency housing, and develop standards and surveys of local capabilities in this area.

Post Office Department: $11,000 to maintain a check on readiness of post offices to distribute and process the prelocated postal locator and safety notification cards.

Department of Interior: $2,600 required to terminate outside funding for the Department's radiological training program.

CIVIL DEFENSE AND EMERGENCY PLANNING

Relationships of the Office of Civil Defense with other Federal agencies are of two kinds: (1) specific work assignments as listed above; and (2) more generalized interest related to the emergency preparedness assignments delegated to the Federal agencies by the President and coordinated by the Office of Emergency Planning.

The emergency preparedness delegations are broad in scope, encompassing plans for preattack and postattack mobilization and use of resources within the agency's sphere of interest, and necessarily they impinge upon the civil defense functions of the Department of Defense. Each of the agencies carrying emergency preparedness assignments is required by the terms of its Executive order to perform certain functions "in consonance with national civil defense plans, programs, and operations of the Department of Defense under Executive Order No. 10952."

This complex of relationships thus entails at least two kinds of coordination:

(1) The Department of Defense, and by redelegation the Office of Civil Defense, coordinates civil defense functions within the Department and among the Federal agencies so far as these relate to civil defense functions under Executive Order 10952.

(2) The Office of Emergency Planning coordinates emergency preparedness (and related civil defense) functions of the Federal agencies in the capacity of adviser to the President.

Distinct from its coordinating role, the Office of Emergency Planning has, by delegation from the President under Executive Order 10952, direct responsibilities for planning to insure continuity of Government at all levels in case of enemy attack. Additionally, under resource mobilization authorities delegated by the President (which we understand will be restated in a forthcoming Executive order), the Office of Emergency Planning has certain planning responsibilities distinguishable from those of other Federal agencies.

The Military Operations Subcommittee will examine the role of the Office of Emergency Planning in a later series of hearings.

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Federal Aviation Agency: $279,000 to develop capabilities of operational components and measures for aircraft and air navigation and emergency use of navigation facilities and to provide protective materials, and evaluate facility readiness.

Housing and Home Finance Agency: $[illegible] to provide guidance on Federal insurance of loans for shelter construction, urban renewal, standards on local provisions of emergency housing, code standards and surveys of local capabilities in this area.

Post Office Department: $1,000 to [illegible] readiness of post offices to distribute and process the [illegible] postal and safety notification cards.

Department of Interior: $2,000 [illegible] information on the Department's radiological training program.

CIVIL DEFENSE AND EMERGENCY PLANNING

Relationships of the Office of Civil Defense with other Federal agencies take two forms: (1) specific civil defense assignments as noted above, and (2) more general and informal relationships to the emergency assignments delegated to the Federal agencies by the President and coordinated by the Office of Emergency Planning.

The emergency preparedness delegations are [illegible] concerned with planning for mobilization and [illegible] use of resources. While the agencies' [illegible] largely depend upon the civil defense functions of the Department of Defense, each of the agencies [illegible] assignments is required by the terms of its Executive order [illegible] to coordinate with [illegible] civil defense programs and operations of the Department of Defense under Executive Order No. 10952.

This complex of relationships thus entails at least two kinds of coordination:

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The Military Operations Subcommittee will examine the role of the Office of Emergency Planning in a later series of hearings.

[illegible]

III. NATIONAL SHELTER SURVEY

To obtain the largest number of shelters in the quickest time at the least cost, the new civil defense program starts with the existing physical plant in the United States—buildings or other structures in place. A nationwide survey is being made to locate suitable fallout shelters, mark them with distinctive signs, and stock them with food and water, medical and sanitation kits, and radiation measuring instruments.

FIFTY MILLION SPACES

The expected yield of the national shelter survey is 50 million habitable shelter spaces. This estimate was given to the subcommittee last summer by Secretary McNamara, and Assistant Secretary Pittman said it is still firm.[19] The Office of Civil Defense assigns top priority to the shelter survey, regarding it not only as a quick means of getting substantial shelter protection but as a basic data source for anlytical studies and planning future programs.

Of the $255 million available in fiscal year 1962 for civil defense, $93 million was set aside for survey and marking. More recently, by revising survey techniques to permit greater use of automatic data processing, the cost estimate has been reduced to $68 million.[20]

Before the survey wheels could start turning, trained manpower was needed. Seeking a high level of professional skills and comprehensive but rapid coverage of the whole country, the Office of Civil Defense turned to architect-engineer firms for these capabilities rather than to volunteer or paid civil defense employees. Even so, the Office was mindful of the fact that relatively few firms were versed in methods and techniques of fallout shelter analysis. Government-sponsored training courses were instituted for professional architects and engineers in order to obtain a nucleus of qualified survey personnel.

SPECIAL TRAINING COURSES

In the first instance, a 4-week training course was conducted during August 1961 at the U.S. Army Engineer School, Fort Belvoir, Va., for selected engineering personnel of field agencies of the Army Corps of Engineers and the Navy Bureau of Yards and Docks. Upon return to their organizations, these persons were expected to train other Government personnel in techniques of shielding analysis and shelter evaluation, supervise contractors in performing survey operations, and act as advisers to contracting officers and division engineers.

Successive 2-week training courses then were conducted at the U.S. Army Engineer School at Fort Belvoir, the U.S. Navy School for Civil Engineer Corps Officers at Port Hueneme, Calif., and eight civilian universities.[21] The initial purpose of the 2-week course was

[19] 1962 hearings p. 13.
[20] 1962 hearings p. 246.
[21] University of California, Berkeley, Calif.; University of Colorado, Boulder, Colo.; University of Florida, Gainesville, Fla.; University of Illinois, Urbana, Ill.; University of Michigan, Ann Arbor, Mich.; Oklahoma State University, Stillwater, Okla.; University of Washington, Seattle, Wash.; and Worcester Polytechnic Institute, Worcester, Mass.

to train supervisory personnel of firms expected to receive survey contracts. Subsequently representatives of interested Federal agencies, including the military services and State and local government agencies, have been invited to attend on a continuing basis.

The training centers were staffed with 40 to 50 university professors and military instructors, participants in earlier OCDM surveys, who had special knowledge and background. Technical Government publications relating to nuclear weapon effects, shielding analysis, radiological defense, and other relevant subjects or basic data, served as textbooks. Emphasis was given to methods and techniques of shelter planning, design, and analysis based on data derived from weapon tests and other research and development. The courses were concluded with written examinations.

PARTICIPATION OF ARCHITECT-ENGINEER FIRMS

Private firms, at their own expense, each sent one or more persons to take the intensive 2-week course in fallout shelter analysis. Civil defense funds allocated to the survey paid for operating costs of conducting orientation and regional training, including instructors' salaries, cost of student material, classroom space, overhead, and tuition for the courses at civilian universities. While no formal commitments were made in advance, firms with trainees who successfully completed their courses were to receive survey contracts.

By mid-February 1962, there were 1,800 graduates from the training schools. Some 200 men (11 percent of the total) had failed but could qualify by reexamination. The technical survey teams are now at work, but the training courses will be conducted for several more years, or "as long as there is a demand." The aim is to broaden the technological base and expand the roster of architect-engineer firms qualified to do planning and design work for clients interested in fallout shelter construction.[22]

CORPS AND BUREAU SUPERVISION

The Corps of Engineers and the Bureau of Yards and Docks, as the Government contracting agencies, are utilizing established field offices and contracting procedures to sign up and supervise the architect-engineer firms. In each of the 50 States (and in the District of Columbia) an Army district engineer or Navy district public works officer has been designated the "coordinating" authority. Army division engineers have "operational control" over designated district engineers and district public works officers. In each field office, approximately four professional persons specially trained in fallout shelter analysis assist in supervising the survey operations.

In Washington, a Joint Civil Defense Support Group has been organized in the Office of the Chief of Engineers for central planning and operational control of the national shelter survey. Its authorized personnel is 42 civilians and 4 military. A Navy captain is a member of this unit. Also, the Bureau of Yards and Docks has established a civil defense shelter branch. According to the testimony, there is close and effective cooperation between the Army and Navy groups. As the larger of the two service organizations, the Corps of Engineers

[22] 1962 hearings p. 132.

is the senior partner in the joint venture for survey work and has charge of operations.[23]

Initial planning guidance received by the 53 field offices in August 1961 stressed due consideration to local architect-engineer firms, distribution of awards to prevent overloading a few firms, adherence to existing procurement directives and regulations, technical orientation of prospective contractors, and prompt arrangements for selecting trainees. Final selection of contractors and negotiation of contracts were done in each case after successful completion of training courses.[24]

SURVEY CONTRACTS

Contracts were of the engineering services type frequently used in Corps and Bureau procurement. Shelter survey contracts were negotiated on a fixed-price basis, comprising a lump sum for all or part of the work, or a unit price for specific tasks, or a combination of both. In negotiating the contracts, Government officers were instructed to apply criteria which would hold down Government costs of administration and discourage contractor propensities to expand administrative overhead, multiply contingencies, or pad costs in an attempt to enlarge profits. Subcontracting of major work was to be discouraged in the interest of tighter management and fiscal controls. Fly-by-night or unreliable firms were to be avoided. Contracts were to be drawn so as to allow for flexibility, thus accommodating changes in survey concept and development of simplified methods without the need to make numerous modifications of the contract.[25]

Survey contracts were awarded to 535 firms. These were expected to make available between 5,000 and 10,000 persons for survey work, including the specially trained architects and engineers acting largely in supervisory roles. The Office of Civil Defense reported in mid-May 1962 that of the 2,267 architects and engineers who had received special Government-sponsored training, 1,500 were in firms under contract for the national survey.

SCOPE OF OPERATIONS

Survey operations are divided into two phases. The objective in the first phase is to get a preliminary inventory of structures which meet the official criteria for fallout shelters. In the second phase, preliminary data will be checked out by detailed building inspections, and shelters will be marked. Technical data and cost estimates for modifications to bring other potential shelters up to official minima will be included in the second phase, although actual modifications will depend on owners' decisions. Storing of federally procured supplies and equipment in shelters is the responsibility of local civil defense organizations.

To get the official shelter insignia and supplies, a building must have shelter space for at least 50 persons and a protection factor of at least 100 (that is, capable of reducing radiation intensity inside the shelter to one-hundredth of that outside). The assumption is that a protection factor of 100 and sheltering for a 2-week period will keep

[23] 1962 hearings p. 115.
[24] 1962 hearings p. 116.
[25] "Fallout Shelter Survey Instructions," Office of the Chief of Engineers, Nov. 3, 1961, pp. 39–40.

the total radiation dose, for most areas of the country, within the limits of human tolerance.

All buildings, whether publicly or privately owned, which meet the minimum standards, are eligible for official shelter designations and supplies. And not only conventional structures, such as office buildings, factories, hotels and apartment buildings, but "special facilities," mainly subsurface enclosures such as subways, tunnels, caves, and mines, are being surveyed for shelter space.

PROTECTION FACTOR OF ONE HUNDRED

The national plan for shelter protection has these aspects:

(1) Fallout protection only is sought. Some protection against blast and thermal effects may be derived from fallout shelters, but this is incidental to, not a part of, the national shelter plan;

(2) The minimum protection factor for officially approved fallout shelters, as noted above, is set at 100.

Assistant Secretary Pittman made it clear that 100 is not a magic number; in his opinion it is conservative as a protection factor. The shielding data gathered in the survey will permit local utilization of shelter areas with protection factors of lower magnitudes.[26]

Recognizing that there has been criticism of a 100 protection factor, Assistant Secretary Pittman maintained that upon this standard the whole fallout shelter program would stand or fall. He said that intensive analysis has convinced the Office of Civil Defense of its adequacy.[27] His deputy, Paul Visher, added:[28]

> This level of protection was developed after a careful analysis of prospective threats and radiation levels which would derive from these threats. This analysis indicated that very few additional lives would be saved from radiation in going above a protective factor of 100.

Since the adoption of the 100 protection factor in August 1961 as the basis for the fallout shelter program, continuing evaluations have affirmed its validity, according to Mr. Visher. He referred to an "independent analysis" by Dr. E. P. Blizard of the Atomic Energy Commission's Oak Ridge Laboratory, "recognized as a leading authority on radiation shielding";[29] to findings of earlier OCDM surveys in 30 cities; and to preliminary investigations last fall by the Office of Civil Defense. Analysis of the survey findings, Mr. Visher said, indicated that many large buildings in the United States had shelter spaces with a protection factor of 100 or more. Few buildings had a protection factor above 500. Examination of high-rise buildings in some metropolitan centers suggested that there was four times as much space with a protection factor between 100 and 500 as there was space exceeding 500. Thus, if 500 rather than 100 had been designated the minimum protection factor, very little shelter space would result from the survey.[30]

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[26] 1962 hearings p. 55.
[27] 1962 hearings p. 72.
[28] 1962 hearings p. 112.
[29] Dr. Blizard is Director of the Neutron Physics Division, Oak Ridge National Laboratory. His analysis, "Choice of a Shelter Protection Factor," was prepared in his capacity as a member of the Committee on Technology for Shelter Survey, which was under the sponsorship of the Committee on Civil Defense of the President's Scientific Advisory Committee. This analysis of protective factors was based on purely physical decay characteristics of radiation.
[30] 1962 hearings p. 113.

DR. TAYLOR'S VIEWS

Dr. Lauriston Taylor, Chairman of the Advisory Committee on Civil Defense, National Academy of Sciences, said of the decision to choose the 100 protection factor: "This is a compromise between no shelter at all and, let us say, virtually perfect shelter." He expressed the personal opinion that it was "a very reasonable figure for safety" since "the great bulk of the people who would otherwise die from radiation exposure"—possibly 70 percent—would be saved by this level of protection.[31]

Richard Park, Technical Director of the Advisory Committee, said that the group had considered shielding requirements, but he doubted that they had arrived at a "stated consensus" as to the value of the 100 protection factor. Dr. Taylor heard no objections to its adoption as the official standard.[32]

Dr. Taylor also pointed out that "a very considerable element of judgment" is involved in shielding analysis of structures, since direct measurements of building capabilities in a nuclear environment are rarely possible. Theoretical work by the National Bureau of Standards, he said, agrees "for the most part within a factor of about 2" with the limited experimental data. The theoretical calculations, due to the restricting assumptions usually made, tend to be more conservative than experimental results. It is quite likely, therefore, that the theoretical analysis of shielding capabilities which the National Bureau of Standards would make for the Office of Civil Defense, would understate the shelter values of existing structures. In large, complex structures, the understatement might be as much as a factor of 5. Perhaps more significant than the uncertainty in the shielding analysis, Dr. Taylor suggested, is the uncertainty in the biological reaction—the differential human response to radiation exposure.[33]

PRELIMINARY SURVEYS

Test surveys were made in selected census tracts of three cities in late 1961 to gain experience for data collection and analysis and pricing of contracts.[34] Test surveys included both phase 1 and phase 2. An early finding was that time and money could be saved in phase 1 if the contractor were relieved of the laborious task of analyzing the data he collected.

This analysis—to establish protection factors and other required information—involves complex repetitive calculations. A contractor in his office, using a pencil, slide rule, or calculating machine, might make a building shelter analysis in 2, 3, or 5 hours depending upon structural complexity; a high-speed computer in a central location could handle more complex data and come up with the answer in one-tenth of a second. Consequently, procedures were developed to separate data collection and data analysis.[35]

[31] 1962 hearings p. 98.
[32] 1962 hearings p. 99.
[33] 1962 hearings pp. 96, 99.
[34] Cities and census tracts (1960) selected for test survey were White Plains N.Y., census tract 93; Baltimore Md., census tracts 26-6A and 24-4B; Washington D.C., census tracts 51, 83, 85 and 86.
[35] 1962 hearings, p. 130.

PHASE 1 OPERATIONS

In the data-gathering part of the work, for which the Government will spend $27 million, the contractors were asked (1) to inventory day and night population and potential fallout shelters in assigned geographical areas,[36] and (2) to collect shielding data for machine computation of protection factors. Bypassing single family residences, the contractors were to survey all facilities estimated to have a protection factor of 20 or better and potential space for 50 or more people. While a protection factor of 100 will be used in officially designated shelters, inclusion in the survey of buildings having a protection factor as low as 20 yields data for potential modifications. However, in the phase 1 survey, the contractors sought structural data relating to shielding only, not to fitness for occupancy or modifications.

In preparing for the survey, the contractors were instructed to spot on base maps the facilities tentatively selected for survey. Then searches were to be made for source data on which to build estimates of the day and night population, and for specific building records to identify structural characteristics. Municipal government agencies, civic organizations, newspapers, and industrial or utility firms were likely sources for population data. Sanborn maps,[37] aerial photographs, building code and occupancy permit records, tax assessor records, and fire inspection reports were possible sources of information on specific buildings. Where gaps appeared in the data, visits were to be made to buildings by contractor personnel, preferably in the company of local civil defense officials.

FOSDIC FORMS

After collecting data on building parts, stories, setbacks, and basements, giving component dimensions and specified structural details, the contractor entered this voluminous information on specially prepared data sheets known as FOSDIC forms (an acronym for film optical sensing device for input to computers). These forms were furnished by the Government in spiral bound looseleaf books. Using a black lead pencil, the contractor posted the data for each structure on a separate form by blacking out pertinent numerals designating dimensions or other quantified or coded information.

The form books, when completed for a standard location, were received by the contracting officers and sent to Jeffersonville, Ind., to be microfilmed by the Census Bureau. The microfilms then went to the Census Bureau in Suitland, Md., to be processed on an electronic reading machine, the FOSDIC, where the blackened numerals were converted into computer codes on magnetic tape.[38]

The National Bureau of Standards in Washington, using an electronic computer, undertook to compute the protection factor, based

[36] Classified and designated by the Census Bureau as "standard locations," of which there are approximately 42,500.

[37] Sanborn Map Co. publishes "fire insurance" maps (map sheets) to scale, depicting building characteristics and building location in relation to surroundings. While the information on the map sheets is oriented toward the requirements of fire insurance underwriters, this is probably the largest single source of printed information pertaining to buildings.

[38] The negative microfilm was fed through the FOSDIC so that the black markings made on the form by the contractor showed as clear spots on the microfilm. An optical scanner or "electric eye" shined through the spot and recorded an impulse on the magnetic tape. The processed tapes were fed into the computer.

on building geometry, position, and shielding data, and to provide a rough estimate of the shelter capacity of each building. The results then became available to the contracting officers in the form of printed listings approximately 3 weeks after the books were sent in.

ERROR CHECKS

Submission of completed FOSDIC forms and required progress or summary reports by the contractor completed his performance in phase 1 of the survey. In some cases, errors on FOSDIC forms detected by office inspection or computer check might cause the resubmission of the forms to the contractor for correction or additional data. According to Mr. Visher, the computer has 120 cross-checks for consistency in the data. If the height of a building were entered in the FOSDIC form as 995 feet, for example, the computer would identify this obvious error. Where errors were due to census processing, the FOSDIC form book was remicrofilmed. Errors due to faulty data entry went back to the contracting officer and the field for correction. Returns of faulty FOSDIC forms and FOSDIC processing errors averaged 15 to 20 percent in earlier operations but now have come down to 10 percent.

Except for rechecking of some field reports, all phase 1 data collecting was completed by mid-May 1962. More than 375,000 buildings had been analyzed in the search for suitable shelter space.

PHASE 2 OPERATIONS

Contracts for phase 2 of the survey are being negotiated separately from phase 1, although substantially the same contractors will be used. Contracting for the second phase commenced in March 1962 and was scheduled for completion in June.[39] Several more months will be required to complete contractor operations.

Phase 2 contractors will make detailed building inspection and analysis to verify the protection factors and estimate the cost and feasibility of modifications. They will also survey selected special facilities for shelter suitability. As explained earlier, only those buildings with a protection factor of 100 or more will be marked and stocked. Engineering and cost information relating to possible modifications of other buildings will be tabulated and summarized by the Census Bureau and placed in the hands of the owners and local authorities.

In May 1962 the Office of Civil Defense estimated that about 200,000 of the 375,000 buildings identified in phase 1, and about 2,000 special facilities (caves, mines, tunnels) would be surveyed in phase 2 of the program.

In the original plan, before phase 2 operations could be undertaken, agreements had to be obtained from building owners permitting public access to the shelter and storage of essential supplies and equipment. The plan now is to obtain agreements before or after award of phase 2 contracts. The responsibility for obtaining agreements as well as storing and replenishing supplies and equipment in approved shelters is put upon local government agencies. Upgrading substandard shelters to meet the minimum shielding criteria (100 protection factor) and capacity (50 persons) is to be done at the option and expense of the property owners.

[39] 1962 hearings, p. 245.

SHELTER LICENSE AGREEMENTS

A special Government form designated "Fallout Shelter License or Privilege," when signed by the property owner, authorizes (1) temporary access by the public in emergencies, (2) posting of shelter signs, (3) maintenance of shelter supplies and equipment on the premises, and (4) right of Government inspection.

A preamble to the agreement recites that "the President of the United States has undertaken for the Nation an accelerated and strengthened civil defense program, including a fallout shelter program"; that the premises in question have been determined by survey to "afford persons protection from the hazards of enemy attack"; and that the grantor "does hereby voluntarily and without compensation" agree to make the premises available for public shelter use, as described in the agreement.

A concluding declaration with form signature by Steuart L. Pittman, acknowledges the "voluntary cooperation" of the grantor, expresses "appreciation for his uncompensated assistance," and accepts and approves the document for the United States when properly filled out and filed.[40]

The license agreement entails no monetary payment to or by the owner. He may revoke the license unilaterally on 90 days written notice by registered mail to the local government agency or the OCD regional office. Upon notice of revocation, the shelter signs would be removed and the shelter stocks and equipment disposed of by local government officials within the 90-day period. If an emergency should arise within that notice period, the shelter area still would be available for use.

Future owners are expressly bound by the terms of the license from the original grantor, and presumably they would take title subject to that condition.

The terms of the agreement permit public use of the shelter area "for the sole purpose of temporarily sheltering persons during and after any and every actual or impending attack." Consequently, public access for testing purposes is not granted, and shelter test exercises involving ingress and egress would have to be separately arranged.[41]

LIABILITY ASPECTS

No significant problems of owner liability are anticipated. Persons using the shelters in case of emergency are regarded by the Office of Civil Defense as "gratuitous licensees." Under the general rule of law applicable to such cases, the owners need only warn of hidden defects or refrain from setting up conditions which would cause injury to licensees. It was noted at the hearings that 27 States had followed the example of the Model Civil Defense Act to confer immunity upon owners who would make their premises available for shelter purposes. Other States are expected to follow suit.[42]

As far as Government liability is concerned, the Department of Defense relates this question to injury or damage to persons or property arising from stocking of approved public shelters. Under the Tort Claims Act [43] sovereign immunity is waived, and the U.S. Gov-

[40] The license form is reproduced in the 1962 hearings, p. 163.
[41] 1962 hearings, p. 164.
[42] 1962 hearings, pp. 155, 169.
[43] 18 U.S.C. 1346 and 2671 et seq.

ernment assumes liability for claims occasioned by the negligence of its agents or employees. However, placement and custody of supplies in shelters is a local government responsibility, with title to the stocks passing to the political subdivision upon acceptance of deliveries. Federal liability would be limited to damage arising from faulty material or equipment; local liability would arise from damage identified with the installation of shelter stocks. For damage claims attributable to the United States, those less than $2,500 can be determined and settled administratively. For claims above this amount, suit must be brought against the United States.[44]

While the Office of Civil Defense believes that the license privilege could be enforced by legal action, in practice the agreement will be negotiated between the owner and the local civil defense authorities.[45] Owners of all buildings with the designated minimum shelter capacity (50 persons) and protection factor (20 or more) will be asked to sign license agreements.

SHELTER LOGISTICS PROBLEMS

The shelter rations are austere and the equipment minimal, but the problems of procurement, distribution, and maintenance are considerable. Ordering supplies on a competitive basis from diverse manufacturing sources, locating suitable warehouse space in localities, moving items from manufacturers to local destinations, breaking down bulk supplies for individual buildings, moving supplies to shelters as these become available, providing secure storage in or near shelters, making periodic inspection, and arranging for replenishments—these logistics operations demand a 3-way cooperative effort among the Federal agencies, local units of government, and property owners, with hundreds of contractors participating along the way.

The buildings and enclosures selected for shelter sites as a result of the national survey will house 50 million cubic feet of supplies produced by some 100 contractors. To control the flow of supplies, to measure progress, and to identify bottlenecks for special attention, the Office of Civil Defense has adapted reporting and management control techniques developed for use in complex weapon systems such as the Polaris. Known in defense circles as PERT (for Program Evaluation Research Task [46]), this reporting system for civil defense shelter purposes includes approximately 1,000 events relevant to the survey and equipping of shelters.[47]

FOURTEEN-CITY TEST PROGRAM

These management and control techniques were applied to a test program for shelter operations involving selected buildings in 14 cities. The purposes of the test program were to gain operating experience, see how building owners responded, and try out the civil defense capabilities of local agencies.

For the 14 test cities, 141 buildings with approximately 100,000 shelter spaces were selected.[48] At the time of the hearings in Febru-

[44] 1962 hearings, pp. 165–166.
[45] 1962 hearings, p. 155.
[46] See PERT, Program Evaluation Research Task, Special Projects Office, Bureau of Ordnance, Department of the Navy, Washington, D.C., July 1958.
[47] 1962 hearings, p. 139.
[48] The 14 cities are Baltimore, Md.; Battle Creek, Mich.; Boise, Idaho; Houston, Tex.; Indianapolis, Ind.; Jefferson City, Mo.; Los Alamos, N. Mex.; Los Angeles, Calif.; Olympia, Wash.; Raleigh, N.C.; Springfield, Ill.; Tallahassee, Fla.; Washington, D.C.; and White Plains, N.Y.,

ary 1962, licenses had been obtained for 92 buildings, or about 50,000 spaces. Licenses for 28 others were pending. Marking had been completed in 30 buildings, with an additional 36 marked on the outside only. Supply shipments for the test cities had reached warehouses (with a few exceptions) or had been placed in shelters.[49]

According to Mr. Visher, the test developed "much valuable information" leading to revised instructions, procedures, specifications, quality control, and cost estimates.[50]

WASHINGTON, D.C., EXPERIENCE

To indicate some of the problems confronting local civil defense officials, we review briefly the experience in Washington, D.C., one of the 14 test cities. Four of the six buildings selected for shelter preparation were owned by the Federal Government. While this fact by itself tended to create special problems, one might expect Federal agencies in the Nation's capital to take the lead, to be a model of civil defense performance.

The test program at the seat of the Federal Government related to these structures:

(1) Government Printing Office, Warehouse No. 4, "G" Place, NE.

(2) U.S. Treasury Annex (NE. corner), Pennsylvania Avenue and Madison Place, NW.

(3) Lafayette Building, Vermont Avenue between "I" and "H" Streets, NW.

(4) Ambassador Hotel, 1414 "K" Street, NW.

(5) U.S. Post Office, North Capitol Street and Massachusetts Avenue, NE.

(6) Union Station, Massachusetts Avenue and First Street, NE.

When the staff, in company with local civil defense officials, visited these sites in mid-March, only two license agreements had been signed—with the Ambassador Hotel and Union Station.

The post office site was eliminated from the program because post office personnel insisted that the floor space necessary for storing supplies in the shelter areas of that building would interfere with their normal operations.

The General Services Administration, as the "owner" of the Lafayette Building, objected to language in the license agreement which gives local civil defense personnel the right to post the shelter signs on the building. The GSA preferred wording which would authorize its own personnel to put up signs lest buildings under its jurisdiction be marred by inexperienced sign posters.

The Fine Arts Commission also entered the picture, since their approval had to be obtained before signs designating shelter areas could be placed on building exteriors. At the time of the staff survey, Fine Arts Commission approval had been obtained for the Union Station and the Ambassador Hotel signs. (At a later date the Commission would meet and give blanket approval to shelter-sign posting in the District of Columbia.)

The signing of a license agreement by the Treasury Department officials was held up because the Secret Service objected, for security reasons, to public access to the designated shelter and storage space.

[49] 1962 hearings, p. 228.
[50] 1962 hearings, p. 150.

(It appeared that certain materials stored at that location made it unwise to permit access to outsiders.)

Government Printing Office signing of the agreement was held up merely because the proper person had not been found to sign the agreement. (Subsequently the agreement was signed and Warehouse No. 4 was stocked with shelter supplies.)

It seemed to local civil defense officials, in the early phases of the operation, that they were getting faster action and better cooperation from private owners than from the Government agencies.

SUPPLY STORAGE PROBLEMS

A major problem confronting local civil defense officials was that of obtaining warehouse facilities for storage until the supplies could be distributed to the actual shelter sites. The expense for local warehousing initially was to be borne by local governments, although the Office of Civil Defense had suggested that in some areas military warehousing might be available without charge. In the District of Columbia, a warehouse was obtained rent free from the Navy. This warehouse is located at Bellevue Annex of the Naval Weapons Plant. Since this site was scheduled for transfer to another Navy unit in the near future, local civil defense officials were uncertain at the time whether they would continue to have the facilities rent free.

(The local storage problem later was resolved by a decision of the Office of Civil Defense to include certain warehousing and distribution costs as part of the Federal outlay. Ownership of the supplies would remain with the Federal Government until such supplies were withdrawn from Federal warehouses for storage in shelter sites.)

Transporting of supplies from local warehouses to shelter sites also looms large as a local expense. With an estimated 1,200,000 shelter spaces to mark and supply in the District of Columbia, cost of transporting the supplies from warehouse to shelter sites, if accomplished at a cost of 10 cents per person, would approximate $120,000. The total annual budget of the civil defense agency in the District is less than $100,000.

A practical question in storing shelter supplies is whether spaces should be used which are not contiguous to the actual shelter area. In the case of Union Station, the problem did not arise since contiguous space was ample for storage. In the Ambassador Hotel, however, contiguous space was sufficient only for water drums, while other supplies had to be stored on the fourth floor. Local civil defense officials are satisfied that the construction of the hotel is such that, if it survives the immediate effects of an attack, the fallout hazard would not be so great as to prevent persons leaving the shelter in the swimming pool area to draw rations and other items from the storage areas above.

An immediate problem cropped up with regard to the polyethylene liners for the water storage containers. The liners are packed in boxes and shipped separately from the containers. District civil defense officials were advised by the Office of Civil Defense not to unpack the liners and fill them with water because the bags, having been folded and packed, tended to split along the fold. Upon hearing of this matter, the staff inquired into the procurement of the water liners. We advert to this below.

Other matters upon which the District civil defense official commented were: Difficulty of stacking and handling water drums weighing about 150 pounds when filled; and failure of provisioning plans to allow for bunks, beds or blankets, or for special food needs of infants. These other necessities would have to be provided by local agencies, public or private, if they were to be provided at all.

IV. SHELTER SUPPLIES AND EQUIPMENT

Procurement of shelter supplies commenced in fiscal year 1962 for 30 million of the 50 million shelter spaces to be identified in the survey. A 2-week supply for 30 million spaces comprises 6 million water containers, 1,200,000 sanitation kits, and 150 million pounds of food. Additionally, many thousands of radiological monitoring kits and medical kits, designed for varying numbers of people, will be procured for individual placement in shelters.[51]

The Federal Government also will procure and provide signs to mark the shelters, both outside and inside. To date, orders have been placed for 1 million shelter signs for inside use at a cost of 35 cents each, and 400,000 outside signs at a cost of 89 cents each.

Costs of supplies and equipment per shelter space are averaging $2.25, with a possible reduction to $2 after volume production is attained.[52] Storage volume averages 1 cubic foot per shelter space.

BASIC FOOD RATION

The basic food ration is 10,000 calories per shelter space, averaging 715 calories daily for 14 days, or 2,000 calories per day for 5 days. Ration levels would be increased or decreased in emergencies according to expected shelter stay-time

The ration will be a single food item with low protein and caloric qualities to minimize intake of water. It is a wheat-based wafer. The food will be stored in hermetically sealed containers and is expected to be edible for at least 5 years.[53]

Under study is a bulgur, or parched wheat, wafer developed by the Department of Agriculture. To verify cost estimates and adaptability of bulgar wafers to large quantity production, contracts have been let through the Defense Supply Agency with a food manufacturing firm. Until bulgur production is proved and established, the wheat-based cracker is being procured for use in the shelter program. The Defense Subsistence Supply Center in Chicago, Ill., is responsible for the procurement.

WATER ALLOTMENT

The most critical consumption item in shelter living is potable water. Thirst is more compelling than hunger and it must be satisfied more quickly to sustain life. Logistics planning for water in shelters had a weighty problem—how to make available 750,000 tons of potable water to half a million shelter sites.

Dependence on normal water sources had to be avoided because of mechanical breakdown or contamination hazards in case of attack. The water would be stored in the shelters. To keep down costs and

[51] 1962 hearings, pp. 234–235.

[52] Breakdown costs for supplies per shelter space were given as food, $1.25; water, 28 cents; sanitation, 28 cents; radiological monitoring, 15 cents; medical, 30 cents.

[53] 1962 hearings, pp. 137–138. See "Food Supply for Fallout Shelters," Western Utilization Research and Development Division, November 1960, ch. 7. This study is printed in the 1961 hearings, app. 10, pp. 401 ff.

storage volume, these additional decisions were made: (1) The water ration would be minimal; (2) there would be bulk storage in cheap containers using ordinary tap water at the site; and (3) the containers, when emptied, would serve as commodes.

Water allotment for shelters is 1 quart per person per day for 14 days. OCDM technical bulletins had recommended 1 gallon per person per day for drinking, washing, and other purposes.[54] Occupants of a simulated shelter who had access to 1 gallon of water per day complained most about lack of water for bathing; water ranked first among the "discomfort factors" recalled by these occupants in answering a questionnaire after leaving the shelter.[55] This kind of complaint showed up in other shelter occupancy studies.[56] The Naval Radiological Defense Laboratory, which conducted several of these studies, concluded that "for a 2-week stay period, the water supply should provide about 15 gallons per person sheltered" [57]—that is, at least 1 gallon per day. The OCDM interdepartmental ad hoc Advisory Group on Research and Development for Food for Shelters recommended 2 quarts of water per person per day as a minimum "survival" allowance for a 2-week stay in shelters.[58] The Public Health Service joined in this recommendation.[59]

In deciding upon a water allotment one-fourth of that recommended by OCDM and one-half of the "survival" allowance recommended by the advisory group, for daily use, the Office of Civil Defense points to the experience of soldiers in desert training or combat: [60]

> Studies and experience of American, British, and German troops have indicated that soldiers exposed to heat and sun under desert conditions, engaged in military operations and training, can live on 1 quart of water per day for periods exceeding 2 weeks. Therefore, on the basis of these studies, the Department of Defense has concluded that 14 quarts of water per shelter occupant under sedentary conditions combined with an austere low-protein diet will permit an organized and informed group to survive without deterioration of health for 2 weeks.

For persons not required to stay continuously in shelters for a 2-week period, other sources of water will be available; and in many structures plumbing or hot water tanks will provide considerable quantities of water. The Office of Civil Defense notes these other possibilities even though they do not enter into shelter planning requirements.

CANNED WATER PROPOSAL

A strong bid for use of sterile, canned drinking water in shelters was made by firms experienced in supplying Navy shipboard requirements and other specialized military needs for storable, long-lasting water supplies. The costs of procuring 750 million quarts of canned water at (approximately) 30 cents a quart, and of moving this moun-

[54] For example, "Fallout Shelter Surveys: Guide for Architects and Engineers, NP-10-2, May 1960."
[55] "Psychological and Social Adjustment in a Simulated Shelter," a research report by the American Research Institute, Pittsburgh, Pa., prepared under contract No. CDM-SR-60-10 for the Office of Civil and Defense Mobilization, November 1960, pp. 56-58.
[56] 1961 hearings, p. 488.
[57] 1961 hearings, p. 249.
[58] 1961 hearings, p. 463.
[59] 1962 hearings, p. 236.
[60] 1962 hearings, p. 237.

tain of water to local warehouses and individual shelter sites, dissuaded the Office of Civil Defense from the canned water approach. Fiber drums lined with plastic (polyethylene) bags, filled with tap water at the shelter site, would run the cost down to 2 cents a quart.[61]

A manufacturer of canned water contended to the subcommittee staff that plastic containers, over a period of time, would contaminate the water with harmful substances and make it injurious to health. This the Office of Civil Defense denies, relying upon advice of experts in the Public Health Service. Dr. James M. Hundley, Assistant Surgeon General of the Public Health Service, testified: "Our general view is that we have no substantial reservations about the safety of water kept in polyethylene containers." [62]

Explaining that the findings are not yet conclusive and that for the next year or more the Public Health Service is committed to a program of periodic testing of stored water samples for bacteriological and chemical changes, Dr. Hundley added: "But we subscribe to the basic use of polyethylene as a container." [63]

An official of the Food and Drug Administration told the subcommittee that his agency had made toxicological studies of polyethylene (and polypropylene, similar plastic) food containers, based on animal feeding tests, and had determined that "there is no question whatsoever about its safety." These tests related to safety of use; none had been conducted on lasting qualities of the containers.[64]

FAULTY PLASTIC BAGS

The first procurement of liners for the water drums, to be used in the 14-city provisioning test, did not turn out very well. Staff inquiry disclosed these developments:

The specifications for the polyethylene bags were prepared by a District of Columbia firm of packaging consultants. The bags were to be made of a certain type of resin and were to be completely leak proof to water in extended storage. Leakage and seam strength tests were specified.

Of 22 firms invited to bid by the Defense Supply Agency, only 2 responded. A fixed-price contract of $3,962 was awarded to a Norfolk, Va., firm for 20,000 plastic bags. Samples were examined visually for defects and measured for specified dimensions. Boxes of packed liners were inspected for count and packaging. Leakage and seam strength tests were performed by the contractor and a testing laboratory.

The bags passed the various tests, but upon the first filling of water at Tallahassee, Fla., early in 1962, half of the bags leaked. The leaks occurred where the bags had been folded. The Government contends that the bags were not fabricated according to specifications and, at the time of the staff inquiry, was about to invoke the warranty clause in the contract. Before the Office of Civil Defense proceeds further in the procurement of water bags, numbering in the millions, more development work will have to be done.

[61] 1962 hearings, p. 239.
[62] 1962 hearings, p. 325.
[63] 1962 hearings, p. 325.
[64] 1962 hearings, p. 326.

FURTHER DEVELOPMENT WORK

Office of Civil Defense personnel point out that the precise purpose of the 14-city test program was to isolate such problems for corrective action. A Cambridge, Mass. firm, Ionics, Inc., specializing in new product development, has been hired to provide technical advice on all provisioning aspects of the public fallout shelter program. The services of this firm will be utilized to test and evaluate six different types of water containers to determine which will be best suited for long-term storage of water.

These containers are polyethylene bags in double ply of 2- and 4-mil thicknesses; blown mold polyethylene drum liners in three thicknesses (8-, 12-, and 15-mil); and polyethylene bonded lining and laminations in an integral container now used in commerce for the shipment of chemicals. Each type will be tested in quantity to provide a basis for early procurement action. According to the Office of Civil Defense, initial selections of water container types for testing resulted from extensive consultations with Government and industrial experts in the plastics and container fields.

STORED WATER TESTING

The subcommittee is advised that before final decision is reached on the use of polyethylene liners in fiberboard drums for shelter water storage, confirming evidence will be sought from the Public Health Service that a system of filling containers in shelters will assure a water supply safe for human consumption. The Public Health Service has advised the Office of Civil Defense that the sealed polyethylene container method will provide safe water for long periods, if the water is not contaminated at time of filling. The Service will monitor the filling process and test samples of stored water at its Sanitary Engineering Center in Cincinnati, Ohio. As an extra precaution, water purification tablets conforming to military specifications will be included in the medical kits, to be available at the time the water is consumed.

The aforementioned test program, which the Public Health Service will conduct in conjunction with OCD regional offices, will seek not only confirming evidence on public health protection but additional statistical evidence of the effectiveness of various containers in holding water under field conditions. Until the initial results of tests conducted by Ionics, Inc. and the Public Health Service are available, the Office of Civil Defense will write no final specifications for water containers nor undertake any large-scale procurement. The problems of procurement in water containers are not expected to delay scheduled installation of shelter supplies.

WATER DRUMS AS COMMODES

The fiberboard drums for water storage are 16 inches in diameter, 21 inches tall, and contain 17½ gallons. The water allotment per person for 2 weeks, at the rate of 1 quart per day, being 3½ gallons, one drum will be required for each five shelter spaces.[65]

The emptied drums will be converted into commodes by fitting toilet seats over them. The sanitary kits for shelters will include, in addition to toilet seats, aseptic action chemicals, toilet paper,

[65] 1962 hearings, p. 137.

plastic drinking cups for individual use, and a small amount of hand cleansing material. Two sanitary kits will be procured serving, respectively, 25 and 50 persons. By mid-May 1962 more than 1 million sanitation kits—enough for 30 million shelter spaces—were on order. The Defense General Supply Center in Richmond, Va., will procure shelter supplies of this kind.

MEDICAL KITS

Each shelter will have a first-aid medical kit with medical supplies in kinds and amounts recommended by the Public Health Service and medical units of the Department of Defense. Training programs in progress will instruct persons in the use of medical kits. A paramedical kit, which permits a higher level of medical care but also requires more training, will be included in shelters having 300 or more persons.[66]

Orders have been placed for 265,500 medical kits—177,000 kits for small shelters at a cost of $13.50 each, and 88,500 kits for use in 300-person or larger shelters at a cost of $61.50 each. For the 30 million spaces to be supplied in fiscal year 1962, an estimated $9 million will be spent for procurement of medical supplies. The Defense Medical Supply Center in Brooklyn, N.Y., will procure medical supplies for shelters.

RADIOLOGICAL MONITORING

Radiological monitoring kits will be drawn, in the first instance, from the civil defense stockpile, which now contains about 40,000 sets of metering instruments. Subsequent procurements will be made through the General Services Administration. Orders totaling $22,111,000 were placed with that agency by mid-May 1962 for radiation detection and measuring instruments.

To date, instruments and training have been provided to equip some 3,000 monitoring stations at Federal facilities and 15,500 at State and local centers such as police and fire stations.

Ultimately the Office of Civil Defense expects to outfit 150,000 monitoring stations at Federal, State, and local facilities throughout the United States. To a large extent, these will be sheltered stations, to afford fallout protection to monitoring personnel. In addition, monitoring instruments will be supplied to public shelters for use in shelter operations and emergencies. Civil defense workers also will be given instruments for decontamination tasks.

After establishing monitoring nuclei in shelter areas, the Office of Civil Defense plans to expand monitoring services with the help of radiological defense advisory teams in each State, comprising Federal State, and local officials.

VENTILATION

Present plans do not provide for Federal procurement of shelter ventilating equipment, even though installation of such equipment would greatly expand shelter capacity. For example, in spaces that are adequately ventilated, each shelter occupant is allotted 10 square

[66] 1962 hearings, p. 138.

feet; in basement-type space not ventilated, each occupant is allotted 500 cubic feet, which (assuming a 10-foot ceiling height) is five times the floor area used as a standard for ventilated space.

Cost estimates and technical advice on ventilating equipment and other means of increasing shelter capacity will be derived from the phase 2 survey and be made available to building owners and local civil defense officials. It is expected that industrial firms and other building owners desiring to provide fallout shelter for employees, tenants, or other occupants, will use this information to install ventilating equipment at their own expense. Also, Federal contributions under the incentive program described below would apply to ventilating equipment associated with fallout shelter construction by eligible institutions.

The 10 square feet allotted to each person in community shelters is a conservative standard, according to Assistant Secretary Pittman, which would give leverage for crowding more persons in shelter if the exigencies demand. He mentioned findings in this country and abroad that persons can stay in crowded conditions—7½ or even 5 square feet per individual—for periods exceeding 2 weeks.[67] OCDM technical bulletins had recommended 15 square feet per sheltered person.[68]

[67] 1962 hearings, p. 239.
[68] See footnote 54.

V. SHELTER INCENTIVE PROGRAM

THE "NEW ELEMENT"

The national shelter survey described in the preceding pages is concerned with fallout shelter space in existing buildings. In his presentation to the subcommittee last summer, Secretary McNamara maintained that the survey of existing structures was necessary before future shelter needs could be judged.[69] Now the Office of Civil Defense, with Presidential approval, has decided that another major step must be taken—without waiting for the final results of the survey. The "new element" is a Federal incentive or contributions program to encourage local construction of additional fallout shelters.[70]

Of the $695 million in Federal civil defense funds requested for fiscal year 1963, two-thirds, or $460 million, are earmarked for the incentive program. Before the funds can be appropriated, authorizing legislation is necessary, since the civil defense law now on the statute books does not precisely cover the proposed incentive feature.[71] If authorized and funded, this program will mark the first time that the Federal Government is prepared to contribute funds for shelter construction, aside from a few prototype or demonstration shelters.

REASONS FOR PROPOSAL

The incentive program in the form proposed by the Office of Civil Defense springs from several considerations:

(1) More shelter spaces are needed. The national shelter survey is expected to yield an estimated 50 million shelter spaces, with 4 million a year thereafter. This falls far short of the national goal of fallout protection for all, announced by President Kennedy.[72]

(2) Better distribution of shelter spaces is needed. The survey program will show concentration of existing shelter spaces in high-rise buildings downtown in large cities. Protection must be afforded also to residential population in suburban or outlying areas.

(3) Federal funds are required to spur shelter construction in substantial amounts. Experience to date showed that unaided local or private efforts in shelter construction were sporadic and insignificant.

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[69] 1961 hearings, p. 7.

[70] 1962 hearings, p. 9.

[71] Matching funds for shelter construction were authorized by the Federal Civil Defense Act of 1950, as amended, but these had to be on a 50–50 basis. Also, Federal contributions for shelters were to be determined by apportionment among the States in the ratio in which the urban population in critical target areas in each State bore to the total urban population of all critical target areas throughout the Nation. Dual-purpose shelters which would have revenue producing potentials could not be the subject of Federal contributions.

A draft of authorizing legislation for the new shelter incentive program was submitted by the Secretary of Defense to the Congress under date of Feb. 8, 1962. See Congressional Record of Feb. 19, 1962, p. 2169. The draft legislation was introduced by the chairmen of the House and Senate Armed Services Committee, respectively, as H.R. 10262 and S. 2857, on Feb. 19, 1962.

[72] In a letter to the Committee on Civil Defense of the Governors' conference sent Oct. 6, 1961, President Kennedy proposed that the Federal Government, State governments, industry, and other institutions work toward the goal of "fallout protection for every American as rapidly as possible." This letter was read to the State Civil Defense Directors Association on the same day by Assistant Secretary Pittman.

(4) Local initiative is to be encouraged. The decision to build a shelter would be a local one. The Federal contribution would be limited to a stated amount per shelter space, so that local incentive to build would be joined with incentive to keep down costs.

(5) Eligibility for contributions is to be selective. By confining the program to nonprofit public-service institutions in educational, health, and welfare fields, public-minded sponsors of shelter construction and operation would be obtained, and technical and cost experience would be better controlled.

(6) Among the eligible institutions, schools are to be emphasized. Fallout shelters in schools would serve not only to insure a good distribution of shelters in relation to residential populations but would induce a particularly favorable public response associated with protection of the Nation's children.

FORMULA FOR CONTRIBUTIONS

Draft legislation for the new incentive program was couched in general terms to allow administrative flexibility. The Office of Civil Defense proposed, administratively, to limit Federal contributions to costs, up to a maximum of $25 per shelter space of 10 square feet. Incremental costs of fallout shelter construction, according to estimates obtained from military and architect-engineer sources, were put at $40 per shelter space.[73] Thus the Federal contribution, related to average unit costs of community fallout shelter construction, might be 62½ percent. For those who could bring shelter construction or modification closer to the Federal limit, the local share of funds would be correspondingly reduced, so that in the most favorable cost circumstances ($25 or less per shelter space), the Federal contribution would be 100 percent.

ELIGIBLE INSTITUTIONS

To be eligible for Federal shelter grants, recipients would, first of all, have to be nonprofit institutions. The Internal Revenue Service listing of nonprofit organizations would be used as a guideline, although it would not be an exclusive source for determining nonprofit status.[74]

Secondly, the eligible nonprofit institutions would be limited to three categories: Health, education, and welfare. State and local laws and procedures would be followed in categorizing the institutions. Both public (State or local government) and private nonprofit institutions in these categories could qualify for Federal grants.

Thirdly, the three categories would be refined further to bar grants to certain types of institutions for reasons of public policy or public safety. For example, a church or synagogue is a nonprofit welfare institution which usually has good shelter potentials; but traditionally Federal financial support is not extended to religious activities, and so houses of worship would be excluded from shelter grants. Technical and cost information would be made available, however, as in other cases where advice was sought in local shelter construction.

[73] 1962 hearings, pp. 35, 150.
[74] 1962 hearings, pp. 155–156.

EXCLUSIONS

In explaining why houses of worship would not be able to get incentive payments, Assistant Secretary Pittman observed that churches and synagogues, for the coming fiscal year, would be engaged in a billion-dollar construction program, privately financed, and that contributions for shelters readily could be raised from private sources. "The need for incentives in these types of institutions," he concluded, "is not so great as in schools and hospitals." [75]

While sidestepping Federal involvement with houses of worship, the incentive program will apply to sectarian as well as nonsectarian schools. This follows the position taken in New York State and presumably is grounded upon the proposition that the shelters are primarily for the benefit of the public.

Institutional facilities of a welfare type which might jeopardize safety of the public, such as jails or penitentiaries, will not be eligible for Federal grants. The exceptional situation is illustrated by a survey of shelter potentials in the State of Washington which disclosed that the State penitentiary at Walla Walla offered the best fallout shelter space in the vicinity. Assistant Secretary Pittman decided that enough suitable space could be set aside in this penitentiary for public use to justify making an exception.[76]

By confining eligibility to institutions experienced in group care, custody, instruction, and improvement, the Office of Civil Defense expects to tap sources of responsible management for shelter operations and enhance community interest in shelter construction.[77]

QUALIFYING FOR PAYMENTS

Eligible institutions, to qualify for Federal incentive payments, first will have to make a showing that the shelter space is needed. If sufficient space already is available in the area, through the national shelter survey or other means, no additional Federal funds will be expended. Determinations of needed shelter space will rest with local civil defense officials.

In planning for modifications of existing structures to provide shelters, local institutions will be advised by the Office of Civil Defense to avail themselves of engineering and cost data on modifications resulting from the national shelter survey.

Shelters constructed with Federal incentive funds will have to meet Office of Civil Defense minimum requirements, such as 100 protection factor, 10 square feet per person, and capacity for at least 50 persons in one structure. The recipient agencies must agree to make the shelters immediately available for public use, in accord with local civil defense plans, and to refrain from peacetime uses (for example, storage of heavy materials) which would interfere with instant use in an emergency. Peacetime uses of shelters, for classrooms, meeting halls, gymnasiums, and the like, will be permitted—indeed encouraged—so long as they continue to afford ready access in emergencies. The commitment to public shelter use must stand for at least 5 years. Federally procured supplies will be made available, through local civil

[75] 1962 hearings p. 171.
[76] 1962 hearings, pp. 171–172. Use of the penitentiary for shelter space is associated with the national shelter survey, not the incentive program.
[77] 1962 hearings, p. 35.

defense agencies, for equipping the shelters, as in the case of structures identified in the national survey.

PROCESSING OF APPLICATIONS

Administrative procedures, it was testified, will be streamlined to speed processing of applications.[78] The eight regional offices of the Office of Civil Defense will review project applications forwarded by State directors of civil defense. These will contain basic information showing the applicant's eligibility, shelter construction plans, financing arrangements, and estimated completion date. The applicant also will certify that he has sufficient interest in the real property to warrant Federal financial support, that the shelter will be available for public use for at least 5 years, and that it fits into the general shelter plan of the community.

The local civil defense director will certify that the space is needed to meet shelter requirements; and that its construction and peacetime use (if any) is consistent with State and local laws, codes, and regulations. He will certify also that the local government accepts responsibility for shelter supplies furnished by the Federal Government.

Before sending on the applications to the regional offices, the State directors will check to see that State requirements are met relative to public shelter needs and to approval of construction projects.

If the application is approved, the Federal regional office notifies the applicant, who proceeds with construction of the shelter. Upon completion, he submits a request for payment, attaching certifications that the shelter has been completed and that the requested payment does not exceed the costs of modification.

ARCHITECT-ENGINEER ROLE

Certification that the shelter is completed in accord with specification will have to be made by an approved architect or engineer. The Office of Civil Defense will "rely heavily" on certifications from these professional sources that official construction criteria have been met. Indeed it will encourage applicants to select firms with persons taking the Government-sponsored 2-week courses described earlier in this report. In exceptional cases, district engineer personnel will make local inspections to check conformity with requirements.[79]

Determination of shelter costs, in the case of modifications to existing structures made exclusively for shelter purposes, may not be too difficult, provided records are kept. Allocation of costs in new construction, to show precisely the incremental costs of shelters, may be more difficult, involving judgments as well as bookkeeping. Here too, the Office of Civil Defense expects the architect-engineer experts to come up with the right answers. It will recommend keeping of adequate records in all federally financed shelter construction projects.[80]

EXPECTED VOLUME OF APPLICATIONS

If the shelter incentive program is authorized and funded, Assistant Secretary Pittman believes that processing of applications could begin within a matter of weeks. He anticipates that applications

[78] 1962 hearings, p. 10.
[79] 1962 hearings, pp. 36, 156.
[80] 1962 hearings, p. 157.

for Federal funds, starting slowly, would jump to peak rates of more than 10,000 a month as low-cost opportunities for shelter construction are exploited.[81] In the first year of operation, possibly three-fourths of the shelter spaces under the incentive program would come from modifications to existing schools, hospitals, and welfare institutions, at a cost of $2.50 or less a square foot—which would mean complete financing by the Federal Government. In subsequent years, the flow of applications would depend more on the rate of new construction.[82]

Applicants will be treated on a first-come, first-serve basis, but to prevent bunching of payments in a few areas, each State will get an allocation of incentive funds. Quotas will be based on ratios of State to national population, number of shelter spaces in the State identified in the national survey, and possibly other factors. Funds not used within a given time period—possibly 6 months—will be reallocated. Problems in fund allocation will be better defined after operating experience is acquired.[83]

TWENTY MILLION SPACES A YEAR

The incentive program is conceived to be a continuing one, lasting as long as the incentive works. The expected shelter yield is 20 million spaces a year, for which the annual Federal outlay will approach $500 million. The estimate of 20 million spaces is derived from available data, varying in detail and completeness, on new construction and expected modifications of existing plant for shelter purposes in the education, health, and welfare fields.

For fiscal year 1963, the Office of Civil Defense estimates that 10 percent of new construction and 5 percent of existing plant in these categories will incorporate shelters under the incentive program. This adds up to a grand total of 200 million square feet of shelter space, which, at the rate of 10 square feet per person, accounts for 20 million spaces as the first year's increment under the incentive program. Potential applicants will be among the 188,000 school units, 6,800 hospitals, and the undetermined number of eligible welfare institutions.[84]

The Office of Civil Defense anticipates that the Federal incentive program will not only spur needed shelter construction outside the city centers, but it will help to advance shielding technology, lower shelter costs, stimulate community interest, attract civic leadership to civil defense, and encourage local public and private shelter-building efforts.

In this optimistic vein, the Office of Civil Defense hopes that State governments will enact complementary legislation and provide funds to assist local institutions which are hard pressed for funds and unable to pay shelter costs beyond the Federal allowance. New York State was cited for its incentive program to assist educational institutions interested in building fallout shelters.[85]

NEW YORK STATE INCENTIVE PROGRAM

A State fallout shelter program was proposed by Gov. Nelson Rockefeller to the New York State Defense Council on October 16,

[81] 1962 hearings, p. 10.
[82] 1962 hearings, p. 141.
[83] 1962 hearings, pp. 11, 52–53.
[84] 1962 hearings, pp. 49–50.
[85] 1962 hearings, pp. 10–11.

1961. The council unanimously endorsed the Governor's proposal in a resolution which stated, among other things, that the State program for fallout protection would be "in furtherance of the national goal stated by the President on October 6, 1961." [86]

A special session of the State legislature called by Governor Rockfeller was convened on November 9, 1961. It enacted a fallout shelter law after 6 hours debate. The legislative declaration included this statement:

> In furtherance of the national goal declared by the President of the United States to reach for fallout protection for every American as rapidly as possible and as an integral part of the State's comprehensive civil defense program, a major objective of the State is to have for each person in the State of New York fallout protection ready and adequate for survival, which will make possible recovery and rehabilitation in the event of nuclear attack.

A major feature of the enactment is to make schools, colleges, and universities eligible for State funds in aid of fallout shelter construction.[87] The State contribution to each eligible institution is put at $25 multiplied by the number of planned shelter occupants, but in no case to exceed 50 percent of the cost of the shelter. No distinction or qualification is made as between sectarian and nonsectarian schools.

The sum of $100 million was appropriated from the capital construction fund to the New York State Civil Defense Commission for allocation to State agencies constructing fallout shelters and to eligible educational institutions for the same purpose. The Civil Defense Commission is made responsible for shelter plans and specifications and control of the shelters to be constructed with State funds for purposes of drills and inspections.

In early April, the subcommittee staff inquired as to the status of the New York program, then 5 months old. Lt. Gen. F. W. Farrell, director of the New York State Civil Defense Commission, advised by letter of April 12, 1962:

> One application for State aid from a parochial high school has been received and approved. In addition, four applications for such aid have been received and are being processed. These are from a parochial high school, a central district school, a public high school, and a private elementary school.
>
> The sum of $11,950 has thus far been encumbered for the program. At the present time, the school districts are preparing their budgets, and no applications can be expected until the budgets are approved by the voters. There have been a very large number of telephone and written inquiries from school authorities. It appears certain that many school authorities are awaiting congressional action following the President's proposal for Federal financial assistance for fallout shelters in schools. Understandably they would like to apply for both Federal and State assistance at the same time.

[86] Resolution adopted by the New York State Defense Council, Oct. 16, 1961, released on that date at the executive chamber, Albany, N.Y. The defense council meeting was attended by some 28 persons including officials of the State executive and legislative branches, business and labor representatives, and others. Henry R. Luce, David Sarnoff, and Dr. Edward Teller are among the names in the attendance list.

[87] New York laws, 1961, ch. 972, sec. 14, effective Nov. 10, 1961.

The wait-and-see attitude suggested by General Farrell's letter has plagued Federal civil defense since the incentive program was first announced last fall. In an attempt to counter this inhibiting influence, the Office of Civil Defense inserted a retroactive clause in the draft legislation authorizing the program.[88] If enacted in its original form, this clause will permit local institutions otherwise qualifying for Federal incentive grants to receive payment for shelter construction started on or after January 1, 1962.

The subcommittee has no indication that the (draft) retroactive clause had any appreciable effect, since the wait-and-see attitude reflected uncertainty as to the course of the authorizing bill itself and the appropriations to make it effective.

SCHOOL SHELTER POTENTIALS

In terms of existing plant and new construction, schools offer the largest shelter potential under the incentive program. There are now in use approximately 2.9 billion square feet of school space in multiclassroom schools, of which approximately 2 billion square feet were built in the last 10 years at a cost of $28 billion. Each year, during the past few years, approximately 70,000 public classrooms and 13,000 private classrooms have been constructed. Projecting these trends, in fiscal year 1963, outlays of $3.2 billion for school construction will add 200 million square feet to the physical plant in education.[89]

The values of community shelters associated with the Nation s schools have been widely recognized. Schools are well-distributed among residential populations. Usually they are within easy walking distance. No problems of land acquisition are involved. Custodial and maintenance personnel, and frequently a school nurse, are available. Children and families alike have a haven in the schools when disaster strikes.

The bonds between community and school were emphasized to the subcommittee by Dr. Wayne O. Reed, Deputy Commissioner of Education: [90]

> Wherever families live, nearby one will find a school. The school is a natural gravitational center for community activities and community interest. Almost everyone in every community or in any neighborhood knows where the nearest school is. It houses for a substantial portion of each schoolday the most precious asset of any community, its children. The most powerful emotional force in mankind lies in those emotional ties between parents and their children. Parents demand reassurance that, while their children are in school, the school staffs and the school facilities will provide the safety and protection necessary for their welfare to the utmost of their capabilities in any emergency or threatened catastrophe.

The obvious advantages of a school-oriented shelter program are the frosting on a cake of complications which baffle policymakers,

[88] H.R. 10262, sec. 1 proviso.
[89] 1962 hearings, pp. 49–50, 333.
[90] 1962 hearings, p. 328.

school administrators, civil defense experts, government officials at all levels, and worried parents. Questions like these abound:

Do existing State laws authorize school districts and other local units to construct fallout shelters? Shall financing for shelter construction be raised locally from school construction funds, general tax revenues, bond issues, or special assessments? Are State funds available? Shall shelter construction be held up pending enactment of the Federal incentive program? Will funds for shelters eat into plans for needed expansion of educational facilities? Shall shelters be single or dual purpose, aboveground or underground, derived from new construction or modification of old? What levels of fallout protection should be sought, and what about blast and fire effects? Where can reliable cost and design data be obtained which fit the local situation?

CALIFORNIA PROPOSAL

The California Disaster Office, which has wrestled with these and other civil defense problems, reported to the State legislature in January 1962, that a statewide shelter program could be effectively organized around school districts.[91] The report proposed that blast and thermal protection be incorporated in 85 percent of the shelters. Financing of shelter construction by school districts was considered impracticable. Other means of financing were suggested. To make proper use of Federal funds if these became available, reliable cost data on shelter construction were needed. A prototype school shelter program was proposed as a means to develop the required cost information.

While the California Disaster Office favored (and recommended) dual-purpose shelter construction in schools, the California Department of Education independently arrived at, and persisted in, the conclusion that shelter must be single purpose. In part the conflict between civil defense and educational authorities in the State is due to different interpretations of the meager cost data; more basically, it reflects the fear of educational authorities throughout the country that shelters might make inroads on scarce funds for educational facilities. They prefer to see shelter construction kept separate from educational concerns, to see shelters integrated in communitywide plans rather than in school plans.

EDUCATIONAL VERSUS CIVIL DEFENSE NEEDS

In some educational quarters this concern gave rise to rather harsh condemnations of shelter construction which struck the Office of Civil Defense during its formative stages, when it was overrun with massive demands for advice and information. The membership of the National Association of School Administrators was advised by its executive committee in a circular dated January 3, 1962:

> Until there is more evidence on the essential elements for a reasonable, protective program in case of thermonuclear attack and until a sound national and community policy is presented, more dependable facts made available, and a community agreement reached, your AASA executive committee advises that you not be stampeded into any form of

[91] "State of California Special Report on Shelters in Schools," prepared by the California Disaster Office in compliance with Assembly Con. Res. 113, Jan. 15, 1962.

> ill-considered action or into a frenzy of construction that may be urged by frightened individuals, hysterical propaganda, commercial interests, or local leaders who do not possess the facts.

Assistant Secretary Pittman stated to the subcommittee his opinion that the association was justified in taking a "wait and see" attitude so far as development of the Federal incentive program was concerned, but he disagreed with the contention that the technical facts for a shelter program were lacking.[92] Subsequently various conferences were held by the Office of Civil Defense and the Office of Education with officials of national school organizations. Dr. Arthur L. Harris of the Office of Education, Department of Health, Education, and Welfare, told the subcommittee that educational leaders and authorities would give "willing cooperation" and support to a public shelter program involving the schools, provided it were well-defined and properly explained. Noting the concern of these authorities that the schools might be penalized if the choice were posed between public shelter space and needed educational facilities, Dr. Harris added:

> But insofar as their willingness to accept a definite program and to participate and to support such a program to the extent of their ability are concerned, they have given that assurance.[93]

SCHOOL SHELTER CONSIDERATIONS

The Office of Education was asked by the subcommittee to present some basic considerations in a school-oriented shelter program. Dr. Reed's testimony on these points, reflecting in the main the opinions of educational authorities, may be summarized as follows: [94]

(1) Shelter construction and school construction serve different purposes, and administrative channels should not be confused. Civil defense requirements should not interfere with planning and use of interior space for educational purposes. The Office of Civil Defense, dealing with the local institution on shelter matters, should concern itself only with shielding features, and by the same token State and local authorities concerned with education, health, or structural adequacy of school buildings should have only routine notice of shelter projects.

(2) Participation by schools in the shelter program should be voluntary. Their governing boards or other authorities should not be forced to choose between shelters and classrooms, laboratories, libraries, or other needed educational facilities. Funding for shelters should be outside the school budget.

(3) Values of school shelters in case of natural disasters as well as nuclear war should be emphasized. Cyclones, tornadoes, floods, explosions, sweeping fires, or other disasters deprive many people of shelter, food, and safe drinking water, and create emergency care needs. School shelters, stocked with supplies, "would provide essential havens of refuge and care."

(4) Public shelter space in schools should be controlled by school authorities. Normally this space would be used for school and

[92] 1962 hearings, p. 277.
[93] 1962 hearings, p. 334.
[94] 1962 hearings, pp. 327 ff.

school-related purposes. Skills of school staffs could be utilized in directing shelter occupancy, organizing shelter routines of feeding, first aid, rest, recreation, instruction, and shelter chores.

(5) The psychological effects on children of windowless schools are largely unknown. In a school-oriented shelter program, many more such classrooms will be built, and they will be used by generations of schoolchildren.

(6) Beyond providing shelters, community planning for emergencies must consider varying sets of circumstances and alternative courses of action. Whether, in case of emergency, children should be kept in schools, sent home, or removed in a body, are among the possibilities to be considered, but local authorities usually plan for only one course of action. Shelter assignments must be worked out so that people will know where to go in emergencies, day or night, whether they are at home or at work, at school or in transit.

(7) Shelter routines must be organized to adapt to severe space limitations and perform necessary tasks. With 10 square feet per person, rest and work and other shelter operations will have to be rotated. Shelter staffs must be trained, and leadership roles prepared to maximize rational behavior in shelters and minimize harmful traumatic effects.

Some of these considerations apply broadly to civil defense shelter systems. Others suggest the professional concern of educational authorities.

VI. SHELTERS IN FEDERAL BUILDINGS

SEVEN HUNDRED THOUSAND SPACES

Inclusion of fallout shelters in civil and military buildings of the Federal Government is expected to make a significant contribution—about 700,000 spaces a year—to the national shelter goals. Additionally, and perhaps more important, the shelter program for Federal buildings is regarded as a means of developing new techniques and lower costs, and of setting an example for State and local governments.[95] It has been described as "a fundamental cornerstone of the incentive program and the technical assistance program." [96]

The present Federal program, according to Assistant Secretary Pittman, is directed toward dual-use construction. The aim is to get the greatest shelter advantage by adapting foundations, walls, and ceilings in the normal construction pattern.[97]

The range for experimentation is wide. Federal civil and military hospitals, schools, manufacturing plants and laboratories, military barracks, office buildings, and others, offer shelter possibilities of many kinds. Analysis of cost data shows, according to the testimony, that earlier estimates of $100 to $150 per person sheltered can be revised to $40. An evaluation of 250 military buildings in next year's construction program was cited to support the estimate of $40 per shelter space.[98]

New Federal buildings in seven cities are scheduled for modification, to yield 35,000 shelter spaces at an average cost of approximately $18 per space. The summary data are as follows:

Shelters in new Federal buildings

Location	Type	Capacity	Incremental cost
Denver, Colo	Courthouse and Federal office building.	9,100	$93,000 ($10 per person).
Cincinnati, Ohio	Federal office building	4,500	$173,000 ($39 per person).
Chicago, Ill	Courthouse and Federal office building.	8,000	$96,000 ($12 per person).
Pittsburgh, Pa	Federal office building	2,500	$40,000 ($16 per person).
Los Angeles, Calif	Customhouse and Federal office building.	9,800	$167,000 ($17 per person).
Montpelier, Vt	Courthouse and post office	175	$7,300 ($42 per person).
Dyersburg, Tenn	Post office and Federal office building.	545	$8,500 ($16 per person).

The first five of the above-listed buildings were described by Mr. Visher as "the cream of the crop of the fiscal year 1962 construction." When this report was prepared, construction contracts had been let for the first four, and $402,000 had been transferred from the Office of Civil Defense to GSA for design and construction of fallout shelters in those buildings.

[95] Ibid., p. 16.
[96] Ibid., p. 150.
[97] Ibid., p. 16.
[98] Ibid., pp. 16, 148.

In mid-May 1962, the Office of Civil Defense reported that GSA has completed agreements for the construction of fallout shelters in 43 new Federal buildings, and for the modification of 415 existing Federal buildings to provide community fallout shelters. Most of these are in post offices, border stations, and Federal office buildings located in various communities. Additionally, negotiations were completed to provide fallout shelters in 12 buildings of the National Park Service, 13 buildings of the Forest Service, 6 buildings of the Veterans' Administration, and 94 buildings of the Tennessee Valley Authority.

It was indicated in the testimony that average costs for shelter spaces will be higher in the smaller buildings, as compared with those per occupant listed above. The GSA estimate of $40 per shelter space for fiscal year 1963 buildings coincides with the estimates made by military construction agencies.[99]

SHELTERS IN MILITARY STRUCTURES

Shelters for personnel at military installations appear as a budget item for the first time in fiscal year 1963. Within the civil defense budget, $15 million has been requested for modification of existing structures. The sum of $5 million has been requested for inclusion of shelters in new military facilities as a part of the Department of Defense military construction budget.[100]

These two programs, if authorized and funded, are expected to yield 500,000 shelter spaces in military facilities during fiscal year 1963. Military personnel of all grades and ranks and their dependents, and members of the general public who can get to the shelters, would have access. Protection factors are the same as for civilian shelters.

AUTHORIZATION PROBLEMS

The problem of authorization and funding for shelter construction in Federal buildings is rather involved. In previous years, the Independent Offices Appropriations Subcommittee opposed requests for shelter in GSA-controlled buildings, partly on the grounds that shelter construction was not expressly authorized.[101] Funds for the fiscal 1962 shelter construction in Federal buildings, summarized above, came from the civil defense budget handled in that year by the Defense Appropriations Subcommittee. The fiscal year 1963 budget for civil defense reverted to the Independent Offices Appropriations Subcommittee.

To clarify the question of authorization, the Department of Defense proposed a general authorization for shelter construction in both Federal civil and military buildings, which was included in the authorization bill for the shelter incentive program. This bill (H.R. 10262) is before the Armed Services Committees.

In the meantime, the Department of Defense proposed in the fiscal year 1963 authorization bill for military construction (H.R. 10202) the following:

> SEC. 402. The Secretary of Defense is hereby authorized to provide shelter protection against radioactive fallout in military facilities in an amount not to exceed $5,000,000, the

[99] Ibid., p. 150.
[100] Ibid., p. 251.
[101] See H. Rept. 1249, 87th Cong., 1st sess., p. 45.

cost of which shall be in addition to the amounts authorized for the construction of facilities under the provisions of this or any other Act authorizing military construction. Pursuant to the provisions of this Section, the Secretary of Defense may allocate funds not exceeding $5,000,000 to the Military Departments on such basis as he determines will provide protection for the greatest number of persons in areas significantly vulnerable to fallout.

In hearings on H.R. 10202, Chairman Vinson of the House Armed Services Committee raised these questions: (1) Why not consider this authorization as part of H.R. 10262, the civil defense authorization bill; (2) why not make the authorization directly to the military services which would construct the facilities rather than to the Secretary of Defense? [102]

The Department of Defense spokesman explained that the funds were requested temporarily for the Secretary rather than for the services because the program and criteria were still not developed enough to determine exactly what amounts should be allocated to each service. He said also that the Bureau of the Budget had made a policy ruling "that money to buy fallout protection features in new construction should be carried in the program which also carries the new construction." [103]

Section 402 was deleted from H.R. 10202 and the bill passed the House without it.[104] As this report was being written, the Department of Defense had these alternatives for action: (1) Request reinstatement of the $5 million authorization in the military construction authorization bill before the Senate Armed Services Committee; or (2) request that the civil defense authorization bill, H.R. 10262, be amended so that the blanket authorization clearly will cover new construction as well as modifications to existing buildings.

NAVY "HASTY" PROGRAM

Of interest in connection with fallout shelter construction in military buildings is a Navy Bureau of Yards and Docks program for "Hasty Personnel Protective Shelter Planning and Construction." [105] Since it takes time to formally plan, authorize, and fund construction of fallout shelters in military facilities, the Navy believes that a stopgap or interim means of obtaining shelter protection should be planned in case of early emergencies.

The hasty shelter concept contemplates using materials, manpower, and equipment that are readily and locally available at shore stations. These will be shelters of limited life and minimal living conditions. The concept emphasizes advance planning but no actual construction until the emergency appears. It does not include a plan for preparing stockpiles of needed materials at each base.

Public Works officers at each Navy shore installation will be held responsible for knowing how to execute the hasty shelter procedure and to indoctrinate maintenance personnel. Inspector general reports will include this item in inspections of Bureau of Yards and Docks facilities.

[102] "Military Construction Authorization, Fiscal Year 1963" (No. 45), hearings before the Committee on Armed Services, House of Representatives, 87th Cong., 2d sess., March–April 1962, pp. 4543–4544.
[103] Ibid., p. 4544.
[104] The committee reported a clean bill (H.R. 11131) to the House.
[105] Budocks instruction 3050.4, Nov. 1, 1961.

[illegible] development [illegible] comprehensive [illegible] [illegible]

In testimony on H.R. 7062, [illegible] version of [illegible] Services [illegible] raised these questions: (1) Why not provide this authorization as part of H.R. [illegible], the regular [illegible] bill; (2) why not make the authorization [illegible] which would [illegible] the [illegible] of the [illegible] of Defense?

The Department of Defense spokesman [illegible] were requested [illegible] for the [illegible] services because the program and criteria were [illegible] enough [illegible] should be [illegible] service. He said also that the [illegible] of the Budget had [illegible] that [illegible] should be [illegible] program [illegible].

[illegible] H.R. [illegible] without [illegible] this report [illegible] of the [illegible] Services [illegible] the [illegible] program [illegible] [illegible]

[illegible]

[illegible]

[illegible]

VII. PRIVATE SHELTER BUILDING

TWELVE MILLION SPACES

Apart from shelter spaces identified in the national survey, or built locally with Federal incentive funds, or included in Federal civil and military buildings, the Office of Civil Defense expects a large segment of the national fallout shelter program to be provided by private sources. Families, industrial firms, groups and organizations, in the aggregate will—according to the official estimate—account for 12 million shelter spaces per year.

NO FEDERAL FUNDS

Federal assistance to shelter building in the private sector not otherwise eligible for Federal funds or supplies, will be confined to providing technical and cost information and advisory services. Development and dissemination of low-cost shelter designs, Assistant Secretary Pittman believes, may be a greater stimulus to shelter construction than money incentives. "Particularly in the case of home shelters," he said, "reliable designs, specifications, and instructions on minimum shelter can do more to bring shelters within reach of many than Federal loans and guarantees of the more expensive home shelters which have dominated the market." [106] Later he acknowledged that "low-cost home shelters would provide a very small part of the total shelter picture." Even in the private sector, community shelters built by industrial and other organizations would be expected to account for most of the 12 million shelter spaces per year.[107]

HOME VERSUS GROUP SHELTERS

Assistant Secretary Pittman dwelt for a moment on the "somewhat confused issue" of home shelters versus group shelters as developed in public discussions. The civil defense requirements had gotten tangled up in such moral issues as the right to shoot intruders at the family shelter entrance or the ethical superiority of the "community" approach to shelters. He observed: [108]

> I take a rather narrow view of the subject. Community shelters are absolutely essential if the country is to have an adequate shield against fallout radiation. A large part of the population would have no other solution. For large groups the job is more likely to be done adequately and at reasonable costs. Every community must have a series of community shelters as bases for survival, places from which people will emerge with a few among them knowing what to do and how to guide the others.

[106] 1962 hearings, p. 15.
[107] 1962 hearings, pp. 68–69.
[108] 1962 hearings, p. 15.

But it is also true that sheltering the American people could not be accomplished without home shelters. There are many in rural areas who could not and would not go the necessary distance to shelters. There are many with backyards and basements who would make the best of their own resources as a matter of preference and should be told how to do so effectively.

The survival of the largest possible part of the rural population has a special significance. Those living on farms may be called upon to assume heavy responsibilities for rescue, rehabilitation, and recovery in less fortunate areas near them. Their survival in shelters and knowledge of measures to preserve crops in the field and to prepare for the next season's crops under uncertain conditions gives a special priority to a rural civil defense program based on family shelters on the farm. This subject will have the particular attention of my office and the Department of Agriculture in the months ahead.

HOME SHELTER DESIGNS

In December 1961, the Office of Civil Defense issued its publication H–6, captioned "Fallout Protection—What To Know and Do About Nuclear Attack." This booklet, which was distributed free of charge through post offices and local civil defense agencies, contains sketches of several low-cost family shelters. Structures of simple design and ordinary materials for basement, backyard, or below-ground use are shown. The materials, it is stated, will cost $150 or less, and the protection factor is rated at 100 or better.

Official minimum standards for family shelter designs are set forth in technical memorandum 61–1 dated December 1, 1961.[109] Family shelters are those designed for use of a household group up to 10 persons. Fallout shelters are to have a protection factor of at least 100; blast-resistant shelters are to protect against 30 pounds or more per square inch of overpressure; limited blast-resistant shelters against 5 pounds or more per square inch. At least 10 square feet per occupant and not less than 25 square feet in total are to be allowed. Minimum clear height is set at 4 feet. Other dimensional and operating requirements are specified.

These standards were endorsed and adopted by the Federal Housing Administration as a guide in its operations.[110]

A handbook containing instructions for building eight types of family fallout shelters in backyards and basements was issued in January 1962 as publication H–7, "Family Shelter Designs." [111] For each type there is provided general information, drawings, steps in the construction sequence, and bills of material. Do-it-yourself construction is emphasized to keep costs to a minimum.

Other technical documents relating to family shelters are in preparation.

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[109] Reproduced in 1962 hearings, pt. II, app. 7A, pp. 534–539.
[110] Federal Housing Administration letter No. 1887, control No. F–386, Apr. 10, 1962.
[111] Reproduced in 1962 hearings, pt. II, app. 7C, pp. 543–572.

HOME SHELTER CENSUS

The Office of Civil Defense has contracted with the Census Bureau to gather statistics on home shelter construction. Questions on home shelters will be included in the sampling studies of population conducted bimonthly by the Census Bureau. The stratified sample covers 35,000 owner-occupied homes throughout the United States. The homeowner is asked (1) whether he has a shelter, or (2) whether he intends to build one.

The results of the first survey, taken in January 1962, after a half-year of intensive public discussion and debate concerning shelters, were not too promising. The Census Bureau reported "that only a negligible proportion, four-tenths of 1 percent," of the surveyed households had fallout shelters. There was little variation among urban and rural households or among the 4 major regions of the country.

Projecting this sample, the Census Bureau estimated that the national percentage of homes with fallout shelters would range between three-tenths and five-tenths of 1 percent. The Census report added: [112]

> Householders also express little interest in building fallout shelters in the near future. Of owner-occupied units without shelters, only 2.7 percent reported any intention of building a shelter within the next 12 months.

Acknowledging that the prospects for home-shelter building are not very good, an OCD witness suggested that even one-half of 1 percent, when applied to the more than 50 million households in the United States, is a significant statistic. A quarter-million homes, averaging 4 persons to the family, with fallout shelters, would mean that 1 million Americans have home shelter protection.

Extrapolations to the whole country of limited sampling data would have to be qualified. Of interest are these statistics from the 1960 census. There are 58.3 million housing units (which include a single room or group of rooms when used as separate living quarters), of which 5.3 million are vacant, and 11.4 million are deteriorating or dilapidated. Only 31.5 million have basements. Of 53 million occupied units, 20.2 million are rented. The average number of persons per household is 3.3 compared with an average family size of 3.68.

FHA INCENTIVES

While the Office of Civil Defense offers no direct money incentives to home shelter construction, it has been working actively with FHA "to make the existing type of financing for home construction available on a long-term basis to include construction of shelters in homes." The problem here, Assistant Secretary Pittman pointed out, is that despite the Government guarantees, banks, finance companies, and other private lenders find little business appeal in long-term home shelter loans.[113]

The FHA has tried to stimulate interest in family shelters within the framework of existing housing legislation. For example, fallout shelters may be financed with FHA title I property improvement loans, which are made through approved lending institutions, usually on the

[112] 1962 hearings, pp. 191–192.
[113] 1962 hearings, p. 39.

borrower's signature without cosigners or collateral.[114] FHA records show that from June 1960 through February 1962 there were 3,353 approved loans for financing of fallout shelters under title I. The total dollar amount was $5,161,784, showing an unweighted average of $1,540 per home shelter. More than three-fourths of the loans during that 21-month period were made in the last 4 months of 1961, when interest in home shelters was at its height. The peak month was November 1961, when 896 loans for shelters were approved.

The sharp dropoff at the end of the year is attributed by an FHA representative to the fact that commencing in December, special requirements were placed upon title I home improvement loans for shelters.[115] To protect the borrower, the new regulation makes lenders reponsible for certifying the loans and inspecting the shelter construction. The lender is obligated to submit plans for a shelter to the nearest FHA office for approval before he may authorize the borrower or contractor to go ahead under title I. If the plans are approved, the FHA office issues a certificate of eligibility to the lender authorizing construction. The lender then must inspect the shelter and certify that the finished job conforms with FHA minimum property and shelter standards.

For single-family homes, the maximum loan amount is $3,500, with 5 years to repay. In multifamily units, the loan amount for each unit is limited to $2,500 and a total of $15,000 for all, with 7 years to repay.[116]

In addition to title I loans, the FHA permits financing of home shelters under sections 203(k) and 220(h) of the National Housing Act. These sections relate to insured home improvement and rehabilitation loans for properties (respectively) outside and inside urban renewal areas. Loans under the two sections, authorized for terms up to 20 years and a $10,000 maximum per family unit, cannot be less in principal amounts than $2,500 in one case and $1,000 in the other. Since these minimums, as applied to fallout shelters, are high, the FHA ordered a special exception for loans used exclusively for the construction of fallout shelters. In such cases the minimums are disregarded.[117]

A third method of adding a shelter to an existing home is through refinancing to cover a home improvement. A shelter financed in this way, with FHA insurance, must meet FHA minimum property and shelter standards.

The cost of fallout shelters in private homes is an eligible item in determining property valuation for FHA mortgage insurance.[118]

In other housing and related programs—urban renewal, college housing, community facilities and public works, and low-rent public housing—existing regulations provide in one way or another for including fallout shelter allowances in grants, advances, or loans.[119] None of these programs has made any significant impact on national shelter requirements.

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[114] Federal Housing Administration Memorandum TI-203, Oct. 24, 1961.
[115] Federal Housing Administration Memorandum TI-203 (supplement), Nov. 30, 1961.
[116] Federal Housing Administration press release, Dec. 5, 1961 (FHA 61-92).
[117] Federal Housing Administration press release, Sept. 20, 1961 (FHA 61-71).
[118] FHA Defense Planning Circular No. 16, Dec. 15, 1960.
[119] See Urban Renewal Administration Regional Circular No. 455, Jan. 27, 1959; No. 483, Jan. 25, 1960.

TAX CONCESSIONS

Tax concessions, as a stronger incentive to home shelter construction, have been proposed. The Office of Civil Defense does not favor such legislation on the grounds that it is "a very regressive method of contributing to the costs of shelter construction." Persons who pay little or no taxes would get little or no help; those in the higher income brackets would get a large contribution from the Federal Government.[120]

A review of legislative bills introduced in the 1st session of the 87th Congress shows that, in general, three types of income tax concessions are proposed: (1) An income tax credit for a percentage of the cost of shelter construction, with a dollar ceiling;[121] (2) an income tax deduction limited to a given percentage of construction cost, a specified dollar ceiling, or a formula ceiling such as the size of the taxpayer's family multiplied by $100 or $200;[122] (3) amortization deduction, whereby the shelter costs are written off in a given period.[123]

OTHER LEGISLATIVE PROPOSALS

Also there are bills seeking to encourage construction of shelters in connection with schools,[124] highways,[125] and new Federal buildings,[126] and to make available loans for shelters under Government-insured home improvement programs.[127] Other bills deal with the use of surplus food stockpiles in emergencies.[128] In view of the upsurge of interest in civil defense, the multiple-agency involvement, and the possible jurisdictional overlap among congressional committees, there are resolutions to form select committees of the House or the Senate,[129] or joint committees,[130] or Federal commissions,[131] to investigate and recommend appropriate civil defense measures.

STATE TAX INCENTIVES

No tax incentive or other legislation relating to family shelters has been enacted by the Congress, but there is some indication of activity in the States. Alabama and Oklahoma have enacted laws permitting income tax deductions up to $1,000 and $1,500 ($750 per unit for multifamily dwellings), respectively, for the cost of family fallout shelters. Ten States have laws allowing property tax exemptions for fallout shelters. Limits for property tax exemptions are in stated amounts, such as $100 per planned shelter occupant in New York and $200 in Alabama, Maine, and New Hampshire; or provide ceilings of $1,500 ($750 per unit for multifamily structures) as in Oregon and Rhode Island; while there is complete exemption in Maryland, Ohio, Oklahoma, and Wisconsin if criteria are met.[132]

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120 1962 hearings, p. 38.
121 H.R. 9037.
122 H.R. 8464, H.R. 8807, H.R. 9203, and others.
123 H.R. 5672 and others.
124 H.R. 82.
125 H.R. 9044.
126 H.R. 8960.
127 H.R. 9202 and H.R. 9422.
128 H.R. 1023, H.R. 1781, S. 2328.
129 H.Res. 66, S. Res. 79.
130 H. Con. Res. 391.
131 H.J. Res. 588.
132 Information compiled by the Federation of Tax Administrators, Chicago, Ill., Dec. 15, 1961.

SHELTER BUSINESS BOOM

The upsurge of interest in civil defense last fall, following President Kennedy's personal messages to the Congress and the American people, and then Premier Khrushchev's menacing talk of 100-megaton bombs associated with Soviet resumption of nuclear testing, caused a temporary boom in the home fallout shelter business. Fabricators of fallout shelters sprang up in many places, offering wares of varying styles, qualities, and costs. There were also purveyors of portable commodes, shelter periscopes, hand-operated blowers, radiation meters, transistor radios, and innumerable varieties of shelter rations.

Many of the advertisers and sellers were established business firms adjusting themselves to the new and sudden demands of the day; others were newly created and sincere in their desire to serve a good public cause while making an honest profit. Unfortunately, among the ranks of new business were fast-buck artists and pitchmen who hoped to cash in on the sudden interest in fallout shelters and accessories. In House Report No. 1249, submitted to the Congress under date of September 21, 1961, we included a special "warning note" which urged the public, among other things to—

> Avoid fly-by-night operators with shelter-building schemes and would-be sellers of expensive or useless gadgets and devices under the label of civil defense.

The committee's concern was shared by better business bureaus, consumer organizations, and government agencies—Federal, State, and local. Attempts were made to formulate standards of business conduct for firms making and advertising shelters and accessories. A national trade association of shelter builders was formed to protect the interests and advance the sales of its membership.

At Chairman Holifield's direction, the subcommittee staff contacted Federal agencies having jurisdiction or interest in protecting the public against unscrupulous shelter salesmen. In each case, the committee's interest was signified and, where appropriate, the staff urged that cooperative efforts be undertaken by the Federal agencies to deal with the problem. The staff also consulted with the National Better Business Bureau, which prepared a set of recommended standards for advertising and sale of private fallout shelters. Following is a brief résumé of agency efforts to cope with improper business practices in the civil defense field.

PROTECTING THE CONSUMER

(1) The Office of Civil Defense prepared and published minimum technical requirements for family fallout shelters, reviewed thousands of designs and proposals, and cooperated with other interested Federal agencies in formulating standards and procedures under applicable laws and regulations.

(2) The Federal Housing Administration instituted the safeguards, described earlier, for field office review of plans and lender inspection of construction, in the case of title I improvement loans for fallout shelters.

(3) The Department of Justice notified all U.S. attorneys that it was "cooperating with the Housing and Home Finance Agency to

tighten controls over the issuance of these [title I] loans." It urged the U.S. attorneys to take vigorous legal action against fraudulent contractors under authority of section 1010 of title 18, United States Code, which proscribes false statements made in connection with FHA programs. Serious consideration to prosecution of fraudulent civil defense enterprises under the mail and wire fraud statutes, sections 1341 and 1343 of title 18, also was asked.[133]

(4) The Federal Trade Commission issued guides for advertising fallout shelters under authority of the Federal Trade Commission Act proscribing unfair methods of competition, or unfair or deceptive acts or practices, in commerce. The guides were prepared on the basis of technical information supplied by the Office of Civil Defense and in cooperation with that Office and the Federal Housing Administration.[134]

FTC SURVEILLANCE

The subcommittee was advised by Paul Rand Dixon, Chairman of the Federal Trade Commission: [135]

> Prior to the issuance of the guides, flagrant false and deceptive advertising of shelters had been noted. Some of this advertising employed greatly exaggerated claims as to the protection afforded by the shelters advertised from both nuclear blast and radioactive fallout. Since the guides were issued, there has been a noticeable and significant change in the character of shelter advertising. For the most part, exaggerated claims of protection from blast and fallout have disappeared. Violations of the guides detected in recent advertising generally have involved claims of a much less serious nature.

To detect violations of the guides, Commission staffs monitored radio, television, newspaper, and other types of advertising, and field staffs were asked to watch for deceptive shelter advertising. Apparent violations by 50 companies were noted. Of these firms, 12 agreed to discontinue their practices, 6 did not stay in business, and for 3 the facts did not warrant action. For the remainder, the cases were being processed under a voluntary compliance procedure, or investigated for possible formal proceedings.

Besides the fallout shelter work, seven matters involving survival products were under investigation at the time of Chairman Dixon's report to the subcommittee. These included radiation detectors, air and water purifiers, canned foods, and protective clothing. Information on five other firms selling this type of equipment was being reviewed for possible investigation.

BAN ON USING INSIGNIA

One of the important items in the Commission guides deals with the matter of Government endorsement and official insignia. If a shelter design meets the minimum requirements of the Office of Civil Defense, the advertiser may so state, but he is forbidden to represent that the shelter is approved or endorsed by the Federal Government or any of

[133] Letter to U.S. attorneys dated Nov. 16, 1961, by Herbert J. Miller, Jr., Assistant Attorney General.
[134] Reproduced in 1962 hearings, pt. II, app. 1A, p. 356.
[135] 1962 hearings, pt. II, app. 1A, p. 355.

its agencies. Use of seals, insignia, or trade or brand names implying Government connection, approval, or endorsement is prohibited.

The Office of Civil Defense does not approve, recommend, or endorse specific commercial products. Representations to this effect, or use by business firms of the official civil defense insignia in advertising, are a violation of regulations subject to criminal penalties. The National Better Business Bureau has issued several bulletins to its membership keeping them posted on such matters. Its recommended standards are similar to those of the Federal Trade Commission.

Recent legislation in New York State relating to fallout shelters imposes civil and criminal penalties for sellers and builders of fallout shelters if these are below the standards for protection set by the New York State Civil Defense Commission and the buyer is not so informed.[136]

DIMINISHING PROBLEM

As indicated in Chairman Dixon's statement and in Assistant Secretary Pittman's testimony, the problem of deceptive practices in the advertising and sale of civil defense articles has diminished considerably. Contributing to this result have been (1) the regulatory and monitoring actions by both Government and private agencies, described above; (2) more sophisticated and more careful buyers after the public discussions and official agency actions; (3) declining interest in home shelters as persons become aware of the Government program for public group shelters; and (4) an unwillingness of buyers to order fallout shelters of the more expensive variety when the Office of Civil Defense recommends low-cost shelters using ordinary materials. The information along this line contained in the fallout booklet H–6 was considered by shelter firms as a very damaging blow to their business.

[136] New York laws, 1961, ch. 972, sec. 14, effective Jan. 1, 1962.

VIII. INFORMATION AND TRAINING

Dissemination of information is an important civil defense function. Indeed the FCDA and OCDM, predecessor agencies to the Office of Civil Defense, looked upon themselves largely as information agencies, giving advice and guidance to local civil defense organizations and exhorting the public. Effectiveness of the Federal operation in civil defense usually was measured by informational output—so many million pieces of literature distributed, so many radio and television messages aired, so many releases noticed in the press and magazine articles written.[137]

QUALITATIVE ASPECTS

The quality rather than the quantity of the civil information distributed by the Federal agencies has been a subject of commentary and criticism. How realistic was the civil defense information? Did it deal honestly with the risks and hazards of nuclear warfare? Could it do so when the Federal Government had no program to offer for protection from these hazards except to urge individuals and groups to act on their own—a do-it-yourself program for civil defense.

The Office of Civil Defense is anxious to avoid the errors of the past. Assistant Secretary Pittman acknowledges—

> the special obligation of the Federal Government to provide balanced, objective information about what is known of the effects of nuclear attack and available means to mitigate the damage.[138]

In planning its information programs, the Office of Civil Defense has this advantage over its predecessors: The Federal Government now is embarked on a definite, even if limited, shelter-oriented civil defense program, which gives purpose and direction to the national civil defense effort. Public information, research and development projects, technical bulletins, radiological monitoring, instruction in emergency care, matching fund contributions, and other civil defense functions largely are being reorganized around the shelter concept.

To this end there is a screening program to review and recall obsolete or now-irrelevant publications, film tapes, and other informational material. Training courses have been reorganized and consolidated. An imaginative research and development program will seek new knowledge and needed information for more effective shelter operations. The technology base for shielding analysis and shelter construction is being widened by training courses for professional architects and engineers, and by publication of an impressive list of technical bulletins to assist contractors, industrial organizations, State and local governments, and others professionally interested in shelter construction.

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[137] See H. Rept. 2069, 86th Cong., 2d sess., p. 2.
[138] 1962 hearings, p. 5.

As we noted in the section on private shelter-building, the Office of Civil Defense puts high value on the technical information and assistance program. Assistant Secretary Pittman characterized it this way: [139]

> These intangible efforts are not promotional. They differ from civil defense activities of the past in that they are disassociated from any efforts to motivate or persuade. This is hard technical assistance which we are developing and beginning to disseminate. It is worth money to the user and capable of saving him money. It is an important adjunct to a fast-moving development of community shelters through the survey and incentive contributions.

Distinct from the "hard technical assistance" to professional users, there is the more sensitive and delicate matter of conveying civil defense information to the general public. Civil defense has become one of the most controversial and emotionally charged subjects in the domain of public affairs. If the matters of interest and concern to the public are treated in all their infinite complexity and scientific qualification, they will be little read and less understood. If these matters are set forth in simple, general, and easily understood terms, inevitably they invite charges of superficiality, distortion, misrepresentation, and the like.

This dilemma confronted the Office of Civil Defense when it was charged with carrying out a promise made before its birth—by President Kennedy to the American people. In his televised speech of July 25, 1961, the President had said: [140]

> In the coming months I hope to let every citizen know what steps he can take without delay to protect his family in case of attack.

PREPARATION OF FALLOUT BOOKLET

Publication H–6, the booklet on nuclear fallout mentioned earlier, was the result of this Presidential statement. It took almost half a year's time, a plethora of advisers, a great deal of editing and rewriting, much painful soul-searching, and more than a million dollars, to issue this publication. Many persons in Government and outside who were not consulted, and some who were, had reservations or criticisms. A few critics of scientific persuasion were not exactly pleased by Secretary McNamara's introductory statement to the publication:

> The factual information in this booklet has been verified by independent scientific authority, and represents the best consensus of the scientific community that we can establish.

Asserting that the booklet generally had been "well received," Assistant Secretary Pittman said to the subcommittee: [141]

> Each sentence in that booklet has been massaged and snarled at by an extraordinary array of distinguished public officials and scientists. I believe it to be a major contribution to the development of a common understanding of the

[139] 1962 hearings, p. 15.
[140] See 1961 hearings, p. 376.
[141] 1962 hearings, p. 5.

> wartime fallout problem. However, it is only the first step in a continuing information program which is under development and will be referred to later in these sessions.

No formal clearance among the Federal agencies was attempted, although advice was sought from informed persons in Government and university circles. A list of 26 persons who provided technical information or commentary on the fallout booklet was submitted for the record.[142]

In the early stages of preparation, writers from Time, Inc., were called in for editorial assistance, but agreement could not be reached on manner of presentation. The job of preparation was given over to the research unit of the Office of Civil Defense, headed by W. E. Strope. The President's science adviser, Jerome B. Wiesner, and his staff helped in the early stages of preparation and joined in the review of the final product. The Advisory Committee on Civil Defense of the National Academy of Sciences also reviewed the booklet at various stages, and its chairman, Dr. Taylor, gave it general, though somewhat qualified, endorsement:

> Most of the individual technical statements included in the book as finally published appear to be accurate and in consonance with the views of the [advisory] committee.[143]

ADVISORY COMMITTEE ROLE

The fact that the booklet was being prepared first came to the advisory committee's attention in the fall of 1961. When the advisory committee was invited to review a draft, Dr. Taylor and Mr. Park spent several weekends doing so. A special 4-day meeting of the full advisory committee was convened October 26–29, 1961, attended also by specialists from other fields. The version of the booklet they reviewed had been drastically revised and condensed from the one earlier sent to them.

The technical material, according to Dr. Taylor, was carefully examined. It was not so much the technical part but the manner of presentation which had been changed. The advisory committee made a fairly detailed review and entered some changes of its own.[144]

In a letter to Secretary McNamara dated October 27, 1961, Dr. Taylor conveyed from the advisory committee essentially these conclusions: (1) Fallout radiation was the biggest war hazard in the years immediately ahead, and accessible shelter was needed; (2) the booklet offered sound technical advice for protective action; and (3) persons who take protective action have a much better chance of surviving fallout effects in a nuclear war. "In summary," the letter said, "it is our opinion that the technical aspects of this booklet are sound. We hope that your policy of keeping the public informed on these vital matters will be continued." [145]

The final version of the booklet actually was somewhat different from the one reviewed by the advisory committee; but Dr. Taylor said that he and Mr. Park kept track of the successive revisions, and

[142] 1962 hearings, p. 27.
[143] 1962 hearings, p. 105.
[144] 1962 hearings, p. 103.
[145] 1962 hearings, p. 25.

they were "quite confident that the technical aspects of the book does meet their [advisory committee's] demands." [146]

Consideration was given to incorporating the advisory committee's letter in the fallout booklet. Since Secretary McNamara had access to the views of other scientists as well, it was decided not to publish the advisory committee's letter in the booklet.[147]

Dr. Taylor made it plain that various advisory committee members had reservations about the booklet, the most important of which pointed to the narrow coverage of subject matter and the failure to discuss blast and thermal effects. Giving preeminence to fallout effects might mislead the public. Still, the public was largely ignorant even of the fallout threat, and it ought to know what the Government recommended in the way of protective measures. Not wanting to hold up publication of the booklet—already delayed—the advisory committee decided to approve the technical material without insisting on fuller treatment. The group was somewhat concerned, too, that it might be getting into nontechnical policy issues.[148]

CRITICISMS OF BOOKLET

The subcommittee received critical comments on the fallout booklet from various sources. The more significant ones are set forth here:

(1) Information on low-cost home shelters is presented, but the cost estimates refer to materials alone. Shelter supplies or accessories are not included. Do-it-yourself construction is assumed.

(2) The recommended home shelters are given a protection factor of 100, but nothing is said about "hot spots" or other heavy (possibly overlapping) fallout areas in which the recommended shelters might not ward off injury or death. Also, the limitations of the shelters, particularly those of the makeshift variety, are not related to multiple hazards—blast and thermal as well as fallout.

(3) The individual is warned against unnecessary radiation exposure, and the lethality dose range is indicated, but no recommendations are made for rationing exposure time in performance of specific essential tasks outside the shelter.[149]

(4) There is only passing reference to long-term effects of radiation or the hazards of internal emitters like strontium 90. Not enough is said to convey useful information on such practical concerns as the consequences of drinking radioactive milk.

(5) The statement is made in the booklet that a shelter system is feasible for protection against fallout effects, implying that protective measures are of no avail against blast and thermal effects. The technical and policy aspects of a shelter program broader than the Government-sponsored one should be examined.

(6) The statement is made that "the pattern of attack cannot be predicted," to explain why fallout shelters in city centers are worthwhile, but the likelihood and consequences of different types or levels of attacks are not discussed. Individual chances for survival are not meaningfully related to the whole.

(7) Effects of a nuclear detonation are described in the booklet for a 5-megaton bomb. Considering that much larger bombs could be

[146] 1962 hearings, p. 105.
[147] 1962 hearings, p. 124.
[148] 1962 hearings, p. 104.
[149] See "Exposure to Radiation in an Emergency," National Committee on Radiation Protection and Measurements, Rept. No. 29, January 1962, reproduced in 1962 hearings, pt. II, app. 5, pp. 425 ff.

used, effects for a range of weapon sizes should be described. (The Office of Civil Defense made a special comment on this point, justifying the 5-megaton example on the ground that recent Soviet tests have been conducted with nuclear weapons in a range of 1 to 5 megatons.)

(8) Possibilities of shelter stay-time longer than 2 weeks are not considered, and there is only a hint of the complex problems in a postattack environment or of the prospects for national recuperation.

Attitudes regarding civil defense had a great deal to do with criticism of the fallout booklet, Dr. Taylor suggested. Persons who were worried and seeking information about means of self-protection would find many of the answers in the booklet. Those who wanted no civil defense of any kind could "take sentences or even paragraphs out of context and make it to appear to be a very poor job, indeed; but you can do this with anything." [150]

Assistant Secretary Pittman told the subcommittee that studies of reader reaction to the booklet were being conducted to find out whether changes were indicated in later printings. As of late February 1962, "No changes of consequence have been indicated to date." [151] Rather than make substantive revisions, the Office of Civil Defense would issue additional pamphlets on specific subjects.[152]

> This was intended to be a first step in a public information program, and successive steps will give a more complete picture of the various problems of civil defense and the conditions in an attack and what can be done about it.

DISTRIBUTION ARRANGEMENTS

At the time of the hearings, 35 million copies had been printed—25 million in the first printing and 10 million in two additional printings. Publication costs for the total output were slightly more than $1 million. No attempt was made to push distribution. The first readers would be those sufficiently interested to write for a copy or pick up one at the nearest post office.[153]

Although a few hundred booklets came back through the mails with derogatory comments, public response generally was described as "very excellent." Many requests have been made directly by schools or through local civil defense organizations for school distribution. Approximately 7 million booklets were distributed to schools. Other institutions interested in educating their members or employees in civil defense also responded well.[154]

Post offices were relied upon for distribution initially because—

> it was felt that a distribution of this size would be—would probably break the backs of the understaffed civil defense organization at the State and local level.[155]

This decision occasioned some dissatisfaction among local civil defense groups who regarded distribution of the booklet as a task belonging to them.

Of the first 25 million booklets, 14,750,000 were shipped to 62 postal service centers and 96 selected post offices for distribution

150 1962 hearings, p. 106.
151 1962 hearings, p. 7.
152 1962 hearings, pp. 7, 272.
153 1962 hearings, pp. 6, 7, 42.
154 1962 hearings, pp. 270, 271.
155 1962 hearings, pp. 31, 32.

through the 31,000 local post offices. Another 4 million went to 790 State and local civil defense directors. Sent to Battle Creek were 6,250,000, to handle additional requests from post office and civil defense units, and from newspaper and industry sources. Ten newspapers distributed 1.6 million booklets with their Sunday supplements.[156]

The 10 million copies from the second and third printings were distributed to State and local civil defense offices.[157] At the time of this report 31½ million booklets had been distributed to the public by post offices, local and State civil defense agencies, and other institutions. The remainder were retained by local civil defense authorities or the Office of Civil Defense to meet future recurring demands.

COMPONENTS OF TRAINING PROGRAM

To develop public understanding and acceptance of a shelter program and to insure effective shelter operations requires, according to the Office of Civil Defense, "a massive education and training job." This job has three aspects: (1) Training of professional civil defense workers; (2) training of others in specific emergency skills—radiation monitors, communications technicians, decontamination specialists, shelter managers; (3) education of the people in each community for intelligent individual action and effective support of the community's civil defense program.[158]

Professional instruction

Professional training is given through the Office of Civil Defense schools. Students are recruited through the regional offices, which are asked to carefully select qualified persons who have key responsibilities in civil defense. There are four schools. Courses are now standardized in five categories: (1) Shelter management, to train instructors who will in turn train local shelter managers; (2) civil defense management, to train civil defense directors and their senior assistants in planning, directing, and analyzing civil defense programs; (3) civil defense planning and operations, to train professional civil defense personnel in major functional areas—communications, warning, shelter use, decontamination, rescue, debris clearance, and fire control; (4) radiological monitoring, to train instructors; and (5) radiological defense, to train officers.

Emergency skills

Training in emergency skills will be accomplished largely (90 percent) through State and local civil defense agencies assisted by Federal matching funds. New criteria are being developed for State training centers as well as a reporting system to keep the Office of Civil Defense informed on training progress. Education and training specialists in the OCD regional offices will administer these programs in cooperation with State and local civil defense organizations.

Public education

Public education, apart from the booklet distribution described above, presently is being accomplished through one established program (adult education) and one experimental program (medical self-

[156] 1962 hearings, pp. 6, 42.
[157] 1962 hearings, pp. 44, 271.
[158] 1962 hearings, p. 212.

help). The Department of Health, Education, and Welfare administers both under contract to the Office of Civil Defense.

For both programs, materials, technical information, and budgetary support are provided by the Office of Civil Defense. The materials for adult education courses are being updated. Last year 15 States participated. By June 1962, 37 States will participate. Funds for coverage of all 50 States are requested for fiscal year 1963.

SELF-HELP MEDICAL TRAINING

The aim of the medical self-help training program is to train one adult member of each family for emergency periods of days or weeks when professional help will not be available. A trial phase is underway in all 50 States, and the program will be instituted in fiscal year 1963 if test results are favorable.

The assumptions underlying emergency medical training for the lay population, which will go beyond the conventional first-aid instructions, are these: (1) Many persons may be isolated as individuals or small family groups for extended periods of time after an attack; (2) half the Nation's doctors may be casualties; (3) organized health services may be delayed for days or weeks in many communities; (4) the demand for medical care will be so much greater than the supply of professional persons that treatment priorities will have to be set up and less severe cases relegated to self or family care.[159]

The training goal in medical self-help is 50 million Americans. The plan is to train 5 million in fiscal year 1963 and 10 million each succeeding fiscal year. For the trial phase in fiscal year 1962, self-help training kits were developed for use in eight 2-hour classes covering 12 topics: radioactive fallout and shelter; hygiene, sanitation, and vermin control; water and food; shock; bleeding and bandaging; artificial respiration: fractures and splinting; transportation of the injured; burns; nursing care of the sick and injured; infant and child care; and emergency childbirth.

Five thousand kits were procured with Office of Civil Defense funds and distributed, mainly to the States, for the experimental training work. Unit cost was $43; in larger quantities, the unit price is expected to be about $40. Each kit contains enough material to train 100 people, in 4 groups of 25 each, and can be used again and again with supplementary handout materials. For the 50 million persons to be trained, an estimated 25,000 kits will be needed.[160]

During the trial period, evaluation will be made of the professional content of the material, methods of instruction, and techniques for program operations and administration. The program is endorsed and supported by the American Medical Association, other medical and health organizations, and the American National Red Cross. At State, county, and community levels, self-help training committees are being established, representative of the health department, medical society, civil defense agency, and office of education, for program coordination.

Each State is responsible for developing a plan of instruction. Physicians will be named to sponsor the training program in each community. Doctors and allied health workers will serve as instruc-

[159] 1962 hearings, p. 308.
[160] Hearings, 1962, pp. 323, 324.

tors or will sponsor instructors. Lay groups for training will be recruited individually or as organizations, with the help of the Red Cross, PTA groups, and other voluntary and community service organizations.

COLLEGE AND UNIVERSITY ROLE

The role of colleges and universities in civil defense training and education is being considered. A joint committee of the General Extension Division of the Association of State Universities and Land-Grant Colleges and the Council on Extension of the State Universities Association has been established to explore possible methods of providing a broad radiological defense capability throughout the country.

A promising avenue is the training of high school science teachers to give classroom instruction in radiation characteristics and hazards. Radiological institutes similar to the one conducted in Washington, D.C., last November, under the sponsorship of Dr. Philip Abelson and the Washington Academy of Science, will be developed.

According to the Office of Civil Defense, contracts with selected colleges and universities to conduct statewide training programs in civil defense emergency skills may have these benefits: reduce training time in the aggregate for vital shelter and other protective services; move training closer to the people in the State; obtain experienced, competent instructors; center civil defense training in a respected State institution; and facilitate administration, evaluation and accounting.[161]

BASIC GUIDELINES

In summary, the Office of Civil Defense cites these basic guidelines for its training programs: (1) Support only priority programs and emergency operational requirements; (2) use existing State and local training resources as much as possible; (3) have tight accounting and careful evaluation of training programs supported with Federal funds; (4) keep training materials up to date and utilize the best and latest research results and protective practices; (5) measure every program and project by its expected lifesaving contribution in a war emergency.[162]

[161] 1962 hearings, p. 215.
[162] 1962 hearings, p. 215.

IX. COMMUNICATIONS AND WARNING

The chief problems of civil defense communications presently are to (1) extend and improve communications for 24-hours-a-day continuous operation; (2) complete the installation of radio backup facilities for present wire circuits; (3) reduce vulnerability through hardening of communications centers and providing fallout protection for commercial broadcast station personnel; and (4) integrate the existing civil defense network with the communications systems of the Department of Defense. In the warning field, an operating system for direct signal to persons indoors is the most pressing problem

EARLIER DEVELOPMENTS

Ten years ago, in the early days of FCDA operation, it was decided to divide civil defense communications responsibilities on a Federal-State basis.[163] Essential communications down to the State civil defense headquarters would be provided with 100 percent Federal funds. Below that level, to State, county, and city points, communications would be handled by States and their political subdivisions. The FCDA provided matching funds on a 50–50 basis, technical data, system layouts, and equipment specifications, to help the States establish the necessary civil defense communications.

The first civil defense network, installed in 1952, was a TWX or telegraph circuit system whereby written communications could be sent between FCDA, its regional offices, and the States. Federal funds were used to pay the cost of the machines installed in the State locations.

TELEPHONE CIRCUITS

To overcome the vulnerability of the limited TWX circuits, which afforded no means of switching to bypass or alternate routes in case a circuit or center were knocked out, the FCDA went to telephone carrier voice circuits in 1955. The large complex of the Nation's telephone circuits promised ample facilities for emergencies.

Drawbacks were found in the telephone voice system, however, since emergency rerouting would take time, would require "patching" by persons vulnerable to fallout, and might be crowded out by other urgent communications. These deficiencies were countered in fiscal year 1961 by the establishment of "full-period preferential routing" on all circuits from OCDM's operational headquarters to the classified location and the regional offices.

These are fixed point-to-point circuits which largely bypass target areas. Messages by voice or teletype can be sent and received simultaneously any time of day or night without delay or interference. Yearly costs of operation are $625,000 for this portion of the communication systems. Equipment is owned and maintained by the tele-

[163] Additional background information on civil defense communications appears in the 1962 hearings, pp. 197 ff.

phone companies and services rendered under contract with American Telephone & Telegraph Co.

Circuits from regional offices to State headquarters are on a standby basis, without preferential routing or continuous operation, for emergency use in civil defense exercises or natural disasters.

By the end of fiscal year 1966, the Office of Civil Defense hopes to have full-period communications to all regions and States. Circuits to the regions by that time will be equipped to handle high-speed data transmissions. Other improvements and expansions in communications also are planned.

RADIO BACKUP

A radio backup system for wire line communications was designed and partially installed within the past few years. Six of the regions, operational headquarters, and the classified location had such facilities by the end of fiscal year 1961. In 1962 work is continuing on the Federal portion, and 20 of the State systems will be installed. The hardware program is planned for completion in 1966.

In emergencies this "NACOM 2" radio net will serve the same points of connection as the "NACOM 1" wire net. Ultimately it will include Alaska, Puerto Rico, Canal Zone, Guam, American Samoa, and the Virgin Islands.

The radio network uses modern-type single sideband equipment providing voice, radio teletype, and radio telegraph capability. The headquarters and regional equipment is remote controlled with 2.5 kilowatts of power output. The State units are simpler, manually controlled, and have 500 watts of power.

Considering that a nuclear attack would seriously disrupt or destroy nationwide communications, the Office of Civil Defense has a program for emergency radio communications in undamaged or fallout areas. This program includes: (1) Fallout protection for operating and maintenance personnel at selected commercial AM broadcast stations; (2) standby power generators in these stations for emergency use; and (3) radio links with civil defense emergency operating centers, so that essential information can be broadcast to the public.

In fiscal year 1962, funds applied to this program are $760,000, comprising $500,000 for emergency generators and transmitter fallout shelters, and $260,000 for radio links to civil defense centers. For the next fiscal year, $7 million has been requested, comprising $6,300,000 for emergency generators and fallout shelters, and $585,000 for radio links.

Funds expended per radio station will average $10,000. Thus 70 stations are covered in 1962 funding and 750 in the 1963 request. Since AM radio stations vary in power output and listening audience, with consequent variations in cost of generators, fallout shelters, and radio links, the program goal is broadest coverage at least cost. The Federal Communications Commission is cooperating in the program.

CONELRAD SITUATION

The emergency broadcasting system will be more effective upon the abandonment of certain military-imposed restrictions in CONELRAD (control of electromagnetic radiation). This system, involving station-rotated broadcasts of civil defense information exclusively on AM channels 640 and 1240, was designed to deny use of radio signals

as navigational aids to the enemy. The military value of CONELRAD has been questioned in recent years. At the February 1962 hearings, we suggested that the Office of Civil Defense attempt to get a consensus from the Joint Chiefs of Staff as to the status of the matter. Assistant Secretary Pittman promised to do so, although he pointed out that a treaty with Canada had to be considered as well as military preferences.[164]

On April 24, 1962, a joint release by the Departments of Defense and State and the Federal Communications Commission announced a "relaxation" of CONELRAD requirements. According to the statement, this would "insure more effective Presidential and civil defense communication with the public in the event of a national emergency." [165]

For the time being, existing plans, rules and regulations on CONELRAD will remain in effect. Changes will be effected as rapidly as possible in cooperation with State and National Industry Advisory Committees. Industry was cautioned that some restrictions on electromagnetic radiation will endure for civil and defense communication purposes.

DEFENSE COMMUNICATIONS AGENCY ROLE

On August 4, 1961, shortly after the issuance of Executive Order 10952, the Defense Communications Agency was directed to plan for a takeover of civil defense warning and communications functions. The Defense Communications Agency plan was presented September 15, 1961, reviewed and revised, and adopted February 15, 1962.

The Defense Communications Agency proposed a two-phase plan, in which nets for warning and communication initially would be transferred as is, then integrated gradually without loss of service. The Office of Civil Defense modified the proposal so as to retain the warning function as well as responsibility for helping the States set up communication links with technical advice and matching funds. It preferred to keep the Federal contributions program administratively intact and to be sure "that there will be adequate safeguards worked out prior to transfer to insulate the civilian warning process from military alerting and exercises." [166]

The warning function will remain in the Office of Civil Defense until expansion of the national warning system is substantially completed. In the meantime, the communication links of the warning system will be assigned to the Defense Communications Agency.

Modest savings are expected from integration of civil defense communications into the defensewide complex. These would amount to 10 percent a year in lower service charges due to better grouping of wire line channels for rate purposes. Operation of the civil defense net now costs $3 to $4 million a year, and the total defense bill for communications is 100 times that amount.

More significant than the small savings are the large backup resources and flexibility afforded by integration into defensewide communications. The Office of Civil Defense believes that civil defense communications needs will not be ignored but will be better met by transfer and placement in the broader defense complex.[167]

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[164] 1962 hearings, p. 45.
[165] Department of Defense Release No. 633-62, Apr. 24, 1962.
[166] 1962 hearings, p. 197.
[167] 1962 hearings, p. 207.

HOME WARNING PROBLEMS

The decision to retain the warning role in the Office of Civil Defense is based in part on the considerable work yet to be done in the home warning area.

The attack warning system, as developed by military and civil agencies of Government, starts with information received directly at the headquarters of the North American Air Defense Command. Warning information is flashed to OCDM regional warning centers, designated Federal agencies, and civilian warning points located mainly in State and city police offices. The States and other political entities are responsible for disseminating warnings to all local communities and rural areas. Outdoor siren systems are depended on for the most part to alert the citizenry.

Limitations of the outdoor siren systems for home warning have long been recognized. Most persons are indoors at any given time and the sound level is not high enough to be easily heard. Building interference and wind conditions affect the sound. In outlying or rural areas, it may not carry far enough. Those who hear the siren often have difficulty distinguishing it from fire, police, or ambulance sirens. And there are equipment breakdowns.

To develop a distinctive, quick, reliable, indoor warning signal, has been a civil defense objective since the early 1950's. Among the alternatives examined were:

(1) Use of telephones. Chief problems here were cost and coverage. It might cost $40 to $50 for every telephone because of major switchboard modification and rework. Only 75 percent of the population would be reached.

(2) Use of radio receivers. This offered better coverage and the advantage of integrating warning and civil defense instructions in one receiver. Millions of families have radios. Each year 10 to 12 million radios are bought, at an average cost of $20 to $40. About 20 to 30 percent are of foreign make.

As the Office of Civil Defense views the problems here, to incorporate warning devices in new production would either take too long or require greatly stepped-up production of radios in a 2- to 3-year period. In any case, with hundreds or thousands of separate radio parts, reliability would be a problem. If existing radios were to be modified, an enormous burden would be placed on the radio repair industry. Specific skills and training would be required. Quality control would be difficult to establish and supervise.

Proponents of a radio signal system, including radio set manufacturers who see a large new market potential, believe they can overcome cost and reliability objections. Philco Corp., for example, which was one of the contractors investigating radio receivers for FCDA, now has developed at its own expense a special circuit to be installed in battery-powered transistor radios at an additional cost of $10. The warning signal, when received from a local radio station, turns on the receiver automatically. The set can be carried anywhere, even to a shelter, and receive civil defense, weather, or other information. Coverage would depend on how many people owned or acquired transistor radios and the installation of special transmitters costing $100 each in local radio stations. Cost and replacement of batteries also would be a factor.

(3) Use of power lines. This is the solution favored by the Office of Civil Defense after extensive investigations and system tryouts. Electrical utilities serve 96 percent of the population, and 99 percent of those in heavily-populated areas. Transmission and receiving equipment developed for civil defense use is known as the NEAR (National Emergency Alarm Repeater) system.

NEAR SYSTEM

This home warning arrangement involves the transmission of a power pulse (by superimposing on the 60-cycle power a 240- to 275-cycle signal) over utility lines to a special receiver plugged into any home or office wall socket or other power receptacle. Upon receiving the signal, the receiver makes a loud buzzing noise. Visual signals also can be used.

Special generating equipment to be installed at utility substations (or at other transmitting points) is estimated to cost $100 million to $110 million. Earlier estimates were half that amount. Home receivers or "black boxes" the size of a cigarette package are figured at $5 to $10 each ($7 to $7.50 is the Government estimate) in quantity production. For 50 million homes, total system costs for generating and receiving equipment approach $600 million, with the predominant share in the receivers.

While judged technically superior to other proposed home warning systems after extensive testing, NEAR ran into new technical problems in recent months. It was discovered that silicon control rectifiers, increasingly used in kitchen and other home devices, might generate enough voltage to activate the receiver when placed in the same circuit or nearby. The Office of Civil Defense is confident that this problem can be solved by use of static inverters on transmitters to make slight upward changes in the 240-cycle harmonic frequency of the warning signal. This may serve to keep the warning signal clear of the rectifier influence, reduce normal noise levels, improve system reliability and performance, and possibly reduce costs of signal generation.

At the time of the hearings, negotiations were underway with several utilities to test the modified transmitter. The Office of Civil Defense proposed to purchase 10 new NEAR transmitters for testing under varying geographic and utility system conditions. Also it planned to procure receivers in production test quantities to develop better information on costs, delivery dates, and instrument reliability. The last factor is highly important for determining the proper test and maintenance cycle. The Office of Civil Defense recognizes that a $600 million program in home warning demands careful planning and a broad production base.

SYSTEM FINANCING AND MANAGEMENT

If the technical problems are fairly well under control, the problems of system financing, operation, and maintenance remain to be solved. Generally, the Office of Civil Defense prefers to assign the whole procurement and management responsibility to the utility companies—have them procure and install the generating equipment and the home receivers, maintain the system, and recapture the costs by rate adjustments or surcharges in the consumers' electricity bills.

Conceivably the Federal Government could purchase and provide the generating equipment to utilities and the receivers to individual families. In the one case, Government-owned and utility-owned equipment would be scrambled, with the attendant problems of accountability and maintenance. In the other, the Government would have large problems of procurement, distribution to 50 million householders, and arrangements for checking and maintenance. If the householder were asked to procure his own "black box," then he would be exposed to all kinds of gadget offers of varying value and reliability.

The experience of the utilities in procuring, installing, and maintaining electrical equipment is emphasized by the Office of Civil Defense. It believes that the best results on reliability, cost, and maintenance of "black boxes" in individual households or businesses rest with the utility companies.

INDUSTRY REACTION

The industry itself has had mixed reactions, stemming partly from uncertainty as to the Government's plans and from the different problems posed to the public- and private-ownership sectors of the utility industry. In accepting this procurement and management role, the utilities would be moving beyond their normal business of power supply. Ticklish problems of rate adjustment might be encountered with State and Federal regulatory commissions. Requests for rate increases to cover NEAR system costs might invite charges of profiteering and consumer exploitation. There is also the troublesome matter of liability for injury and damage attributed to false or premature signals.

The 2,000 municipal and other publicly owned systems, normally outside the purview of regulatory commissions, would have their own problems. Any one of them might experience great difficulty in financing $50,000 to $100,000 worth of special generating equipment for its substations and thousands of "black boxes" for its customers.

A special committee of the Edison Electric Institute submitted a report on NEAR which was approved by the institute's board of directors in September 1961. It said that the utilities can and should participate in the NEAR program, and that the technical and legal problems are not unsurmountable. The utilities were urged to cooperate in further testing of NEAR, particularly on power grids with characteristics different from those of the system tested in Michigan. The Government and industry were advised to investigate other power warning devices, which might be more suitable in some areas, without delaying progress on NEAR.

Secretary McNamara's statement of last summer that the generating equipment would be procured with Federal funds was deemed a satisfactory basis for negotiation with the Government. Suitable indemnification clauses in the contracts were recommended. The utility committee also proposed that the Department of Defense make arrangements for the distribution, sales, inspection, and servicing of the NEAR receivers.

UTILITY-BY-UTILITY APPROACH

Since the issuance of the Edison Electric Institute report, the Office of Civil Defense considered the possibility of utility financing and management of the whole system, as noted above. Assistant Secretary Pittman said, however, that no decision had been made and the door is open on the method of financing. Some utilities might prefer to do it themselves; others might need Government help.[168]

The Office of Civil Defense has held many meetings with representatives of utility companies, utility commissions, and State Governors in pursuit of its NEAR objectives. Rather than try to force nationwide utility management of NEAR, the Office of Civil Defense will explore installation and operating problems on a utility-by-utility basis. With 3,400 utilities in the country, the management problem for home warning is complex.[169]

Considering that the receivers will account for 80 to 85 percent of the system cost and possibly 90 percent of the reliability problem, the key to the organization and management of the NEAR system is seen to be at the receiving end—the control and handling, inspection, and maintenance, of the "black boxes." If the utilities will assume these functions, the Office of Civil Defense believes that the problems associated with generating equipment will "fall into place." The question of indemnification raised by the utilities has been postponed pending clarification of other problems. Legislation probably would be required to sanction this privilege.

[168] 1962 hearings, p. 182.
[169] 1962 hearings, p. 181.

X. RESEARCH AND DEVELOPMENT

ADVISORY COMMITTEE APPRAISAL

Civil defense research needs were appraised in 1958 by the Advisory Committee on Civil Defense of the National Academy of Sciences. The group sought to determine whether enough was known to embark on a national shelter-building program, what gaps and deficiencies existed in current research programs, how effectively the agencies coordinated and exchanged information, and what were the security and administrative problems.

The advisory committee concluded that radiation casualties could be prevented only by adequate shielding, that enough technical knowledge existed to warrant moving ahead with a shelter construction program, but that many details had to be investigated "to provide a more effective and coordinated shelter system." Since it would take some years to complete "a substantial program of shelter construction," supplementary research and studies could go on during the construction period.[170]

Among the recommended research areas were these: Systems planning and integrated studies in communications, monitoring, shelter utilities and supplies, shelter management and health; methods of educating professional persons and the public on radiation hazards and medical self-help; an experimental program for controlled field studies which would not involve weapons firing; decontamination; and organization and management of resources for the postattack period.

The advisory committee deplored the fact that the low status of the FCDA, the low national priority of its program, and the lack of positive Federal leadership, discouraged leading scientists from working in this field, despite its vital importance for lifesaving in case of nuclear attack.

NEW DEPARTURE

Transfer of civil defense responsibilities to the Department of Defense in 1961 promised to overcome many of the handicaps of predecessor civil defense agencies. The research budget was increased by a large factor. The research resources of many Federal agencies, military and civil, were drawn upon for research tasks organized in a functional way to serve a shelter-oriented civil defense program. Universities, nonprofit corporations, and business firms also received contracts.

One of the aims is to broaden the civil defense research base throughout the country. By parceling out small, well-defined projects to many different contractors, quick answers are being obtained to many questions arising in the new civil defense program. At the same time,

[170] A report by the Advisory Committee on Civil Defense, the National Academy of Sciences, on "The Adequacy of Government Research Programs in Non-Military Defense," 1959, reproduced in 1962 hearings, pt. II, app. 3, p. 369.

research capabilities can be assessed for larger and longer range projects.

For fiscal year 1962, the sum of $14.6 million was earmarked for research. Additionally, $877,008 was transferred from OCDM for the shelter prototype program. For fiscal year 1963, $17.75 million is requested. This level of research contrasts with the $2 million to $3 million spent annually for research by the predecessor civil defense agencies. The Office of Civil Defense cites economy, effectiveness, reliability, readiness, and a better basis for making decisions and planning future programs as the objectives sought in its expanded research program.

IMPROVING THE DATA BASE

In fiscal year 1962, emphasis is given to improving the data base for the shelter and related programs. A list of more than 200 specific projects was drawn up, reviewed by interested Government agencies, modified, and translated into contract awards. At the time of the hearings, approximately $3 million were committed in contracts and $5 million were in negotiation. The remainder would be awarded in the last quarter of the fiscal year.

The research unit in the Office of Civil Defense has a staffing target of 40 persons, of which 30 will be scientific or technical staff. For the time being this will be a monitoring rather than an in-house research group.

The allocation of research effort will be: 21 percent to military agencies; 14 percent to civil Government agencies; 13 percent to universities; and 52 percent to private research organizations.

The $14.6 in 1962 research funds will be divided among four program areas: $5.6 million to shelter research; $4.5 million to support systems research; $1.5 million to postattack research; and $3 million to systems evaluation. In the weapons effects area, $2.5 million will be spent on blast research, $1 million on fire research, and $4 million on radiation. A small amount will be devoted to the problems of biological warfare.

MASS FIRE PROBLEM

In view of the considerable interest shown in thermal effects of nuclear detonations, the subcommittee requested the Office of Civil Defense to submit testimony and a prepared paper on mass fire effects, drawing on records of experience with mass fires caused by conventional and nuclear bombing in World War II and other relevant data. The information presented to the subcommittee is an objective analysis of a problem which is too frequently treated in an unscientific manner. The testimony also points up the vital need for additional research on thermal effects.

The committee notes that Atomic Energy Commission data relating to thermal effects was questioned by a witness from the Office of Civil Defense.[171] In its release of October 31, 1961, on very high yield nuclear weapons, the Commission described skin burn hazards and combustibility of materials at given distances for different size weapons, making no distinction in effects of a surface detonation and an air burst below 50,000 feet.[172] The Office of Civil Defense witness pointed out that the recently revised edition of the "Effects of Nuclear

[171] 1962 hearings, p. 79.
[172] Reproduced in 1962 hearings, pt. II, app. 12, pp. 690 ff.

Weapons" gives a quantitative statement of differences between the thermal effects of ground and air detonations.[173]

Chairman Glenn T. Seaborg of the Atomic Energy Commission submitted a statement to the subcommittee explaining the basis for the AEC statement and the range of uncertainties in the data. He expressed the Commission's regret that its release lent itself to possible misinterpretation.[174]

RADIATION STUDIES

Research on radiation will account for a substantial share of the weapons effects research program. The advisory committee's 1958 recommendation for controlled experimental programs short of weapons firing was made during a time of test suspension. The Naval Radiological Defense Laboratory undertook, under OCDM sponsorship, to develop an engineering and test facility using simulated fallout. Another contractor developed a facility to determine experimentally the shielding characteristics of building models. Several instrumented shelter facilities were constructed, and experiments were undertaken in protective, environmental, and management aspects.

The current series of weapons tests at the Nevada proving grounds will provide an opportunity to conduct important radiation studies in the formation and distribution of fallout, in the dynamics of the radiological environment to which persons might be exposed, and in the development of countermeasures. Weapons tests will not only provide important data for a better understanding of radiation characteristics but will provide a means of verifying other experimental data and testing proposed countermeasure systems. The Nevada test program for civil defense purposes is known as Operation Small Boy.

MEDICAL RESEARCH

The biological and medical aspects of radiation will be further investigated by the Public Health Service as a part of the research program which the Public Health Service will perform for the Office of Civil Defense. Acute and chronic effects of radiation, and a simple biochemical means to determine radiation dosage, are among the research projects in this category.

The Public Health Service also will participate in civil defense research concerning medical care in shelters, simplified treatment of burns, delayed treatment of wounds, and other matters of importance to civil defense.

The Service also outlined for the committee the gaps in present knowledge and needed areas of medical research to support civil defense programs.[175] A shelter environment is but one of the many sets of problems which require extensive and detailed medical investigations.

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[173] See 1962 edition, p. 363.
[174] 1962 hearings, p. 79.
[175] 1962 hearings, pp. 312-313.

LONGER RANGE RESEARCH

In its report of last year, the committee emphasized the importance of civil defense research on a broad front which should look to future as well as present needs. We said: [176]

> The committee believes that the research and development effort should be substantially increased, not only for meeting immediate needs ahead, but to anticipate the developing requirements of a longer range civil defense program.

In a similar vein, the Advisory Committee on Civil Defense, responding to a request to review the proposed civil defense research program for fiscal year 1962, made this reply:

> The committee concurs in the decision to put primary emphasis this year on applied research and on research in support of operational programs. We recognize that this is the first opportunity to finance adequately the search for the solutions to many of the problems that have arisen year after year in the past. The committee is hopeful, however, that as soon as the new programs become established, serious attention will be given to some of the long-range research programs of a more basic nature.

The advisory committee also recommended that civil defense planning "be based on realistic and detailed planning assumptions"; that research results be incorporated rapidly into manuals for shelter builders; that a sizable in-house research staff be organized to monitor the numerous, diverse research projects; and that contracting with large organizations be limited, selective, and temporary, with "fundamental thinking on civil defense" remaining a Government responsibility.[177]

[176] House Rept. 1249, 87th Cong., 1st sess., p. 54.
[177] 1962 hearings, pp. 94–95.

XI. CASUALTY AND DAMAGE ASSESSMENT

Among the general assumptions underlying the national fallout shelter program are these: That "complete security" in case of nuclear attack is impossible to attain; that a nuclear attack would cause heavy damage and destruction to life and property under any protective measures; that a fallout shelter program could save many who would otherwise be killed; and that enough persons would be saved to insure national survival and a base for recovery operations.

LIFESAVING POTENTIALS

At the time of out August 1961 hearings, Secretary McNamara suggested that 10 to 15 million persons, who would otherwise be killed in an attack, could survive in fallout shelters. This estimate was related to a proposed program for 50 million fallout shelter spaces to be identified and equipped through the national survey.[178]

More recently a 5-year goal of fallout protection for all Americans has been projected, as summarized in section XIV. On the basis of fallout shelter protection for all, involving more than 200 million spaces, the Deputy Secretary of Defense, Roswell L. Gilpatric, stated recently that 40 to 55 million lives could be saved.[179] He described this estimate as "conservative," although he conditioned its validity on the existence of the requisite shelter spaces, an informed public which knew how to use them, and a sufficiently strong local organization of civil defense. The time span for the estimate was "now, or some years ahead."

A range of 40 to 120 million lives saved also has been cited by the Office of Civil Defense under other possible assumptions, including an attack solely against military targets. At our recent hearings, the lifesaving potentials were given in percentage terms. It was estimated that from 25 to 75 or 85 percent of the persons who would otherwise be killed could survive in fallout shelters.[180]

The percentage figures are not too meaningful since they do not tell us how many persons are involved. And the estimates of persons saved, even in numbers, do not give us the assumptions on which they rest, nor do they convey a sense of the total destruction. A statement that 40 to 55 million lives would be saved also could mean simultaneously 90 to 110 million lives lost, if cities as well as military centers were attacked.

The official estimates endeavor to show the incremental value of fallout shelter protection alone. Since blast and thermal protection are not afforded by fallout shelters, except incidentally, casualties from these "immediate effects," although they could number in the millions, are not figured in the estimates. Fallout shelters cannot save them. Lifesaving values for fallout shelters relate to those who would otherwise die from fallout.

[178] 1961 hearings, p. 7.
[179] Remarks to the U.S. Civil Defense Council, Washington, D.C., Mar. 12, 1962. Reproduced in 1962 hearings, p. 289.
[180] 1962 hearings, pp. 194, 286.

These lifesaving estimates move up or down, of course, depending on whether we choose a more or less favorable assumption—an earlier or later time period, a greater or lesser total weapon yield, military targets exclusively or heavily populated areas or both, or air or ground weapon bursts. As the committee said in its previous report, "There are many variables in the calculus of survival."

Other things being equal, we might expect that fallout shelters would save more lives both absolutely and as a percentage of unsheltered casualties, if ground burst weapons are used and the enemy concentrates on military targets rather than people. If people are the primary target, the immediate weapon effects assume much larger magnitudes, and consequently the fallout shelters have less value in the aggregate.

The fact that fallout shelters in the first segment of the national shelter program tend to be concentrated in downtown large city sections still makes a fallout shelter program worth while, in the opinion of the Office of Civil Defense—an opinion supported and approved by the President. Assistant Secretary Pittman pointed to the factors which make it difficult for an enemy to direct weapons against all cities. Even if the enemy were willing to sacrifice certain military objectives to strike at cities, direct effects—blast and thermal—would not necessarily destroy the majority of Americans, according to Assistant Secretary Pittman. Fallout shelters would save many millions of those not immediately killed.

The frequent confusion and misunderstanding which arise from resort to what this committee has termed "loose arithmetic," arise partly from the fact that the basic data for the estimates are classified. If realistic assumptions are to be used in civil defense planning, we must rely on the best information we have about enemy capabilities for a nuclear war. We must know the levels of attack which are possible within given time periods, means of delivery and other factors.

So long as official estimates are given out but the underlying assumptions and the basic data remain hidden, there will continue to be confusion and misunderstanding.

DAMAGE ASSESSMENT PROGRAM

Analysis of a wide spectrum of attack possibilities is part of the damage assessment program conducted by the Office of Civil Defense under the mandate of Executive Order 10952. This program also requires quick estimates of a national damage after an actual attack.

Preattack analysis concerns itself with vulnerability factors to be used in planning at the local and national level. For example in planning for supply requirements and continuity of operations, or for locating civil defense stockpiles or emergency control centers, preattack analysis provides information for basic decisions.

Postattack assessment includes rapid computer estimates and aerial reconnaissance, the latter function being assigned to the Tactical Air Command. After an attack, reconnaissance units would fly over actual points of detonation and take photographs for use in further data analysis. These aircraft would not perform aerial radiation monitoring, which is a function assigned at local levels to private aircraft at civilian airfields. Aerial radiation monitoring as distin-

guished from aerial damage reconnaissance would be a continuing function after an attack.

The final phase of postattack damage assessment involves site inspection. Damage status would be reported from the field to the Census Bureau and the Department of Agriculture for tabulation.

A completely automated system for reporting nuclear detonations is being developed as an Air Force system in response to a requirement of the North American Defense Command approved by the Joint Chiefs of Staff and the Secretary of Defense. The prototype system calls for reporting of the four pieces of information: time of detonation, ground zero, yield, and height of burst. If the prototype development is workable, this reporting system will be extended to the entire NORAD area of responsibility—the United States and Canada.

Weather reports are another essential in rapid damage assessment by computers. The Weather Bureau submits reports every 6 hours which are fed into the computer location. Up-to-the-minute weather forecasts of high-altitude winds are available for use in damage assessment and forecasting fallout.

NATIONAL RESOURCES INVENTORY

An electronic computer maintained by the National Resource Evaluation Center contains considerable data for damage assessment purposes, but the data are considered incomplete or out of date, or lacking in important particulars. For fiscal year 1962, $1 million was appropriated for damage assessment. Inventory data, location, and other information for damage assessment will be collected with respect to public schools, water and food supplies, health, manpower, and facilities, fuel and power resources, mapping techniques, home shelter construction, and daytime population.

Government agencies having interest or jurisdiction will collect these data. For example, the Office of Education will inventory elementary and secondary schools. The Public Health Service will inventory water supply systems. The Department of Agriculture will determine the location and quantities of wholesale food stocks throughout the country. The Census Bureau, as noted earlier, will provide sampling estimates of home shelter construction and also will make sample checks of the daytime population by standard location. The census sample will be used to verify or adjust estimates of population collected by contractors in the national shelter survey.

COMPUTER SERVICES

Probabilities of damage resulting from a variety of hypothetical attacks will be studied with the help of a computer at the Army Ordnance industrial data facility. A contract has been made for 1,000 hours of computer time for a classified hazard probability study.

Computer services account for a large part of the $2.5 million requested for damage assessment in fiscal year 1963. Processing of data from the shelter survey and other requirements yield an estimate that 5,000 hours of computer time will be needed for damage assessment purposes in fiscal year 1963, a fivefold increase over that programed in fiscal year 1962. The 1963 program will continue the

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inventory of national resources mentioned above and will refine data collection to include food stocks at consumer and retail levels, electric power sources, mapping of resource data, and others.

The National Resources Evaluation Center, including the staff and computer, will remain under control of the Office of Emergency Planning, although the center is manned largely by Corps of Engineer personnel. Computer procedures and programs will continue to be coordinated with the aid of a steering group representing agencies making principal use of the computer. The two major users are the Office of Emergency Planning and the Office of Civil Defense. At least one-third of the computer time will be made available for civil defense use, and complete machine-use records will be kept available for inspection by all users.

The committee is advised the Bureau of the Budget will make a study to determine the full computer requirements for all emergency planning.

XII. STATE AND LOCAL PARTICIPATION

STATUTORY PROVISIONS

The Federal Civil Defense Act as originally enacted in 1951 declared that the "responsibility for civil defense shall be vested *primarily* in the States and their political subdivisions."[181] In 1958 the policy declaration was amended by Public Law 85–606 so that "the responsibility for civil defense shall be vested *jointly* in the Federal Government and the several States and their political subdivisions."[182]

The new language of the 1958 declaration also called for a "system" rather than a "plan" of civil defense for the protection of life and property in the United States, and for "direction" as well as "coordination" by the Federal Government.

The original act required the Federal Civil Defense Administrator to, among other things, sponsor and direct State civil defense plans and programs, train local civil defense workers (including provisions for subsistence and training aids), promote interstate compacts on civil defense, and make financial contributions to the States, on the basis of approved programs or projects, for civil defense purposes.

Contributions for local personnel or administrative expenses or personal equipment were banned. Contributions for organizational equipment had to be equally matched by the States. Contributions for shelters or other protective facilities likewise had to be equally matched and methods of allocation were prescribed (no contribution funds for shelter construction ever were appropriated).

The Administrator was authorized to limit or withhold contributions in cases of failure to expend funds in accord with approved plans and Federal regulations and requirements.

The amendatory provisions of the 1958 enactment added these substantive authorizations:

(1) Radiological instruments and detection devices, protective masks, and gas detection kits could be purchased (until June 30, 1964) by the Federal Civil Defense Administrator in amounts up to $35 million a year and distributed by loan or grant to the States for civil defense purposes;

(2) Financial contributions could be made by the Administrator (until June 30, 1964) in amounts up to $2 million a year to purchase personal equipment for State and local civil defense workers;

(3) Financial contributions on a matching basis could be made to the States (until June 30, 1964) for salaries and administrative expenses in amounts up to $25 million a year. The matching contributions were to be made in accord with State civil defense plans

[181] Public Law 81–920, approved Jan. 12, 1961, sec. 2 (64 Stat. 1246).
[182] Approved Aug. 8, 1958, sec. 2 (72 Stat. 532).

approved by the Administrator as consistent with the national plan for civil defense. Allocations were to be made to States on the basis of their importance as a target or support area, degree of civil defense readiness, population, and other factors prescribed by the Administrator.

By a separate 1956 enactment, Federal surplus property was made available to the States for civil defense purposes on a donable basis.[183]

In preparation for the 1961 hearings last August, Subcommittee Chairman Holifield requested the Comptroller General to present a summary statement of his major findings in surveys and investigations of the OCDM programs. The General Accounting Office reviewed three OCDM programs: Federal contributions, surplus property, and survival projects.[184]

FEDERAL CONTRIBUTIONS PROGRAM

Under the matching funds arrangement, the States and their political subdivisions have obtained Federal funds for (up to) one-half of the cost of civil defense materials, buildings, equipment, and training. Approximately $90 million of Federal funds were expended under the contributions program in fiscal years 1952 through 1961.[185]

While OCDM has acknowledged the intent of Congress that items approved under the Federal contributions program should be used for civil defense purposes as distinct from normal Government requirements, the GAO investigators found that items frequently were being used in normal Government activities. Their review of project applications with a Federal share of about $8.4 million indicated that $5.2 million in Federal funds were for items primarily used in ordinary Government activities. This represented 62 percent of the dollar total of the project applications reviewed.

According to the GAO findings, OCDM and its predecessor agencies through the years relied primarily on certifications by the applicants without developing standards or criteria which the regional offices could use to determine in a consistent and independent way whether civil defense purposes were being subserved. Frequent applications for normal Government use occurred in regard to such items as radio communications equipment, training centers, traffic control equipment, helicopters, hospital generators, cafeteria equipment, and firearms.

The largest segment of the contributions program was represented by the acquisition and leasing of communications equipment. From fiscal year 1952 through 1960 about $41.5 million, or 43 percent, of the total cost of the Federal contributions program was obligated for the procurement, leasing and maintenance of communications equipment. In this category, such items as base stations, mobile radios, and related accessories had been obtained through the civil defense program by State and local police, fire, highway, and conservation departments. The GAO investigators found that these were primarily needed for normal day-to-day operations. The summary information presented to the subcommittee cited specific cases.

The GAO also reported "some other basic deficiencies in managements controls": (1) About $1 million in nonlegal payments, (2) un-

[183] Public Law 84-655, approved July 3, 1956 (70 Stat. 493).
[184] See 1961 hearings, app. 8A, pp. 391-395.
[185] 1961 hearings, p. 398.

necessary or premature advances of millions of dollars in Federal funds, (3) improper payments because of insufficient documentation for claims paid, and (4) OCDM approval of project applications with a Federal share of $188,407 for generators in hospitals financed by the Public Health Service, although dual Federal participation was not legal.

The GAO reported that the OCDM did not perform comprehensive and continuing reviews at the State and local levels to determine whether applicants were complying with pertinent laws or OCDM policies, procedures, and requirements. Consequently, no information was available for evaluating program procedures and performance in the interest of efficient administration.

SURPLUS PROPERTY DONATIONS

From the beginning of the donable surplus program in 1956 through September 1960, surplus property with an original acquisition cost to the Federal Government of about $150 million has been donated to the States and their political subdivisions for civil defense purposes. As in the case of the contributions program, the GAO reported that OCDM had acknowledged the intent of Congress to restrict surplus property donations in this area to civil defense purposes (except for use in natural disaster), but management controls were not adequate to determine compliance with the law. No standards or criteria for use by regional offices had been developed. Program reviews at regional, State, and donee levels were inadequate to determine program effectiveness.

The main recipients of donated surplus property in the civil defense sector were police, fire, public works, and highway departments, which used the equipment in their day-to-day operations. Evidence was found that local users in some cases were being urged by State or local authorities to fill normal needs through the civil defense donation route. Property was received by certain applicants despite the lack of a local civil defense plan.

Instances were noted of diversion of donated property, such as trucks, bulldozers, road graders, armored cars, boats, marine engines, helicopters and other aircraft, cranes, radar sets, diesel engines, revolvers, shotguns, tugboats, barges, snowplows, and forklift trucks. Expendable items, such as paint, wire, small tools, tarpaulins, and mosquito nets also were being used outside of civil defense.

SURVIVAL PROJECTS

The GAO reported that OCDM had expended $12.8 million to help States and political subdivisions develop "operational survival plans" for use in a civil defense emergency. The committee examined this subject in earlier reports, noting that the survival plans were based on the concept of evacuation. Federal expenditures were made for evacuation long after it was obvious that such planning was outmoded.[186] The subcommittee was advised by the Office of Civil Defense that the States will be asked to discard their evacuation plans and to reorient State and local planning around the national fallout shelter program.[187]

[186] See, for example, H. Rpt. 2946, 84th Cong., 2d sess., pp. 33–39.
[187] 1962 hearings, p. 211.

In administering the survival projects program, the OCDM entered into written contracts with the States whereby Federal funds were provided for development of operational plans by project staffs employed by the States. These funds served in an indirect way to provide contributions for personnel and administrative expenses, which were not explicitly authorized until 1958, several years after the survival planning program was underway. In some cases Federal funds were spent by State project agencies to hire management consultants, who then tried to get similar contracts in other areas.

The GAO reported that OCDM did not effectively administer the survival planning program in that it approved many "inoperable" plans, thereby removing any incentive for the States to complete their work. Certain records which the GAO requested in this area were withheld by the OCDM on grounds that these were staff reports for exclusive use of the Director.

RESPONSES TO GAO FINDINGS

Frank B. Ellis, then recently appointed Director of OCDM, acknowledged that "compliance activities by the States have not been universally satisfactory." He told the GAO that he would "work toward strengthening this important responsibility." He promised tighter program administration, and development of more sophisticated standards and criteria. He instigated a close review of procurement documents to insure that obligations were incurred within the period of fund availability. Other corrective actions were instituted or scheduled.[188]

Upon the transfer of civil defense responsibilities to the Secretary of Defense, a reevaluation of the GAO findings were made. The Assistant Secretary of Defense (Comptroller) reported to Chairman Dawson:[189]

> We concur in the main thrust of the GAO findings and recommendations which we interpret to conclude that the procedures used in determining the need for civil defense facilities and equipment have been inadequate in recent years. The possible misuse of equipment purchased with Federal contributions for local governmental activities may well be the result of the procedures then employed by OCDM and to lack of adequate communication with State and local officials on the full significance of the certifications which they were asked to make.

The committee also was advised that on August 22, 1961, shortly after assuming its new civil defense responsibilities, the Department of Defense directed all regional offices—

> to suspend further approval of all Federal contributions except for those items which are unique to civil defense and those which permitted continuation of certain activities in which the Federal Government had a partial investment.

Following a critical review, the suspension was listed on September 22, 1961, with the announcement of certain new requirements.

These interim procedures make it necessary for a State or local government to have a legally constituted civil defense organization

[188] 1961 hearings, app. 8B, pp. 395–396.
[189] 1962 hearings, pt. 2 app. 11 p. 669.

and an approved operational plan to be eligible for Federal contributions. The applicant is required to demonstrate that the civil defense needs exceed his currently available resources and his normal governmental need for the items.

According to the Department's report to Chairman Dawson, the regional directors have sufficient discretion to approve or disapprove applications to avoid the results described in the GAO report. In replacing interim procedures with final ones, the Office of Civil Defense proposes to "go as far as practicable in developing precise standards to guide regional directors on the relation between civil defense and normal governmental requirements." Discretion for realistic administration of the matching funds program, however, is to be retained at the regional level. For certain types of equipment, very specific standards and criteria are to be developed on the basis of experience gained under the interim procedures.

The Department of Defense transmitted to our committee its comments on each GAO recommendation made in a formal report to the Congress. It concurred with most of them and described corrective action taken.[190]

IMPORTANCE OF STATE-LOCAL ROLE

The importance of State and local civil defense organizations in carrying out the national fallout shelter program and related civil defense operations was emphasized throughout the testimony at the 1962 hearings.

The local civil defense officials will be responsible for assisting the architect-engineer contractors in the national shelter survey, executing license agreements with property owners for public access to shelter areas, receiving and taking title to Federal shelter supplies, posting shelter signs, installing supplies and equipment in shelters, maintaining custody and arranging for replenishments, and working with property owners and other local persons to expand and improve local shelter resources with technical assistance and data derived from the national shelter survey. Training persons for shelter management and operations such as monitoring, rescue work, and debris clearance will be largely local responsibilities.

In short, the local civil defense director is to be the Federal Government's agent and the community leader for the shelter program.

Assistant Secretary Pittman stated to the subcommittee, in response to a question about the ability of the local civil defense organizations to support the national effort in the shelter field, that personally he felt "the present structure is not adequate to do the job." [191] However, he said that the local civil defense response in recent months has been encouraging. Generally, he expressed confidence that the local organizations could be strengthened sufficiently to execute the necessary tasks. Considering that they would have important new responsibilities, specific tangible assignments, and Federal assistance in money, equipment, and techniques, he saw favorable factors for a strengthened local civil defense.[192]

The Federal contributions program for personnel and administrative expenses is increased by 50 percent in the fiscal 1963 budget

[190] The Department of Defense comments are reproduced in 1962 hearings, pp. 669 ff. The GAO document is Rept. No. B-133209, dated December 1961.
[191] 1962 hearings p. 161.
[192] 1962 hearings p. 16.

request according to the testimony.[193] In other cases, where the civil defense units were understaffed, underfinanced, or otherwise unable to perform, the Office of Civil Defense expected that established units of Government would perform the necessary shelter and other civil defense tasks.

Still to be decided, at the time of the hearings, were problems of of funding for certain operations in the shelter program which involve both Federal and State action. For example, a local burden of warehousing costs for shelter supplies might be too heavy to bear. The decision now is to have Federal financing of warehousing operations in major cities and Federal delivery of supplies to outlying areas.

Personnel improvements in State-local civil defense were cited at the hearings. There are approximately 22,000 political jurisdictions which are eligible under the contributions program for salaries and administrative expenses. It was pointed out that the civil defense capacities of these units could not be known in a systematic and continuing way, but that many would be brought into the civil defense orbit through leadership of State civil defense directors assisting in the national shelter program. According to one Office of Civil Defense spokesman:

> Already there is a rising curve of participation. For example, there were 703 political subdivisions in the program on June 30, 1961, but by February 1, 1962, 828 had come into the program.[194]

By mid-May the Office of Civil Defense reported that 926 State and local government units were taking part in the fiscal year 1962 program of Federal matching funds for civil defense personnel and administrative expenses. The sum of $11.9 million in Federal funds had been obligated to help pay these costs, including matching of salary costs for 1,800 employees of State governments and 2,600 employees of local governments.

Also, the Office of Civil Defense had obligated $5,339,000 in matching funds for this fiscal year to help States and localities purchase civil defense equipment. The expenditure involves 2,434 projects. Emphasis is being given to equipment expenditures for group shelter management, warning, communications, radiological defense, public information and training. Less emphasis is given to contributions for heavy maintenance equipment, vehicles, and similar items.

The regional offices, as noted earlier in this report, are expected to be the administrative centers for the Federal programs in aid to State and local civil defense organizations. There is a central point in Washington for two-way communication with the eight regional offices. In each of the eight regions, a director is responsible for the entire operations of his office. Expert personnel in civil defense technical operations, training, State-local requirements, administrative and auditing activities, and public information, will work directly with State civil defense organizations.

The Office of Civil Defense, through Assistant Secretary Pittman and his associates, is working closely with the Governors' Conference on Civil Defense, the National Association of State Civil Defense Directors, the U.S. Civil Defense Council, and other organizations interested in one or another civil defense aspect.[195]

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[193] 1962 hearings, p. 161.
[194] 1962 hearings, p. 211.
[195] 1962 hearings, p. 211.

XIII. CIVIL DEFENSE STOCKPILES

EMERGENCY FOOD AND MEDICINE

Separate from the shelter provisioning responsibilities of the Department of Defense are programs for stockpiling food and medical supplies for emergency use. These stockpiling responsibilities, as noted at the outset of this report, were delegated by President Kennedy to the Departments of Agriculture and Health, Education, and Welfare by Executive Order 10958 of August 14, 1961. The two departments also have other emergency preparedness functions delegated by the President, respectively, in Executive Orders 10998 and 11001 of February 16, 1962.

How departmental programs for civil defense and emergency preparedness are integrated internally, yet coordinated with separate supervising authorities in the Department of Defense and the Office of Emergency Planning, are matters which the committee will consider in a later report. However, we did take testimony from the Departments of Agriculture and Health, Education, and Welfare on their civil defense stockpiling functions because of the congressional interest in these programs and to update our previous report.

WHEAT REDISTRIBUTION PROPOSAL

Soon after Executive Order 10958 was promulgated, the Department of Agriculture proposed to relocate 126 million bushels of Government-owned wheat at an estimated cost of $47.2 million. The raw grain reserves were to be moved from the present storage sites, largely in production areas, to 191 metropolitan centers with a total population of 95 million persons. In this way, the Department proposed to counter postattack food shortages. The proposed redistribution would have allowed three-fourths of a pound of wheat per person per day over a 4-month period.

This committee criticized the plan for raw wheat distribution; and the Congress, in the first round, refused to appropriate the funds for its execution. An emergency food plan, it seemed, should not depend on the uncertain possibilities of immediate postattack processing of raw wheat.[196]

PROCESSED FOODS FOR EMERGENCIES

In its 1961 report the committee favored the processing of raw wheat in peacetime so that the prepared foods could be used readily in emergencies. The Department of Agriculture now seems more disposed toward this view. According to testimony presented at the 1962 hearings, "the weight of the [Department's] thinking is in the direction of the processed food, rather than the relocation of raw wheat".[197]

[196] H. Rept. 1249 87th Cong. 1st sess., pp. 50–51.
[197] 1962 hearings, p. 350.

If this decision is made and a redistribution program is authorized by the Congress, the Department may try to adapt the flow of processed foods in present channels, such as school lunch, relief and food-for-peace, to the requirements for emergency reserves. A Department spokesman sees many "administrative headaches" in holding and rotating processed foods over given periods for preparedness purposes, but such a program probably could be put into operation with sufficient advance planning. The cost for storage, packaging, and transportation of processed emergency foods is put at $50 million for a 2-year period, a cost estimate not materially different from that earlier proposed for raw wheat distribution.[198]

MEDICAL INVENTORY[199]

The stockpiling of emergency medical supplies dates back to 1951, when the Federal Civil Defense Act was passed. In fiscal years 1951–52, there were expended $60.6 million for such supplies, and additional amounts for the 5 next fiscal years, through 1957, brought the total outlays to approximately $192 million. For the next 4 fiscal years, through 1961, no funds were granted.

Procurement of civil defense emergency hospitals and supplies began again under the new manager—the U.S. Public Health Service—after the issuance of Executive Order 10958. Fiscal year 1962 funds available for these purposes are $31,315,000, of which $25,500,000 is for 750 new emergency hospitals and $5,815,000 for supplies to expand the capabilities of the hospitals.

The capitalized dollar value of the medical stockpile through fiscal year 1961 is $170.2 million. The writedown of approximately $21.8 million from acquisition cost represents: (1) $17 million for reprocessing blood plasma into serum albumin; (2) $1 million for damaged or other unusable materials; and (3) $3.8 million in net downward valuation due to lower cost replacements such as penicillin G tablets for penicillin injection sets.

DETERIORATED STOCKS

Deteriorated stocks are valued cumulatively at $30.6 million. This backlog of deterioration has accumulated because of insufficient replacement funds. For example, the Public Health Service reports that $950,000 was made available in 1962 for replacement of deteriorated stocks, whereas the replacement need for the next fiscal year is figured at $15.7 million.

The following table gives a schedule of replacement needs over a 5-year period. If carried out, by the end of fiscal year 1967 none of the sensitive (perishable) items in the medical stockpile will be older than 5 years.

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[198] 1962 hearings, p. 351.

[199] The remainder of this section is based on testimony presented by U.S. Public Health Service witnesses, 1962 hearings, pp. 294ff.

CIVIL DEFENSE MEDICAL STOCKPILE

Estimated replacement needs for deteriorated materials by fiscal year

[In millions]

Sensitive items	Current inventory value	Fiscal year 1963	Fiscal year 1964	Fiscal year 1965	Fiscal year 1966	Fiscal year 1967
Antibiotics	$10.1	$3.1	$2.5	$2.0	$1.8	$1.3
Biologicals	3.0	.2	.2	.2	1.0	1.0
Other items	17.5	12.4	1.5	1.5	1.5	1.5
Total	30.6	15.7	4.2	3.7	4.3	3.8

The Service is working on a program with medical supply manufacturers for holding and rotating bulk supplies, particularly vaccine, serums, and antibiotics, which have a limited shelf life. Other means of rotating stocks also are being explored.

The medical stockpile inventory is categorized as follows: (1) $126.3 million in medical bulk stocks and unit assemblies in warehouses; (2) $5.5 million in bulk stocks at manufacturers' locations; and (3) $38.4 in civil defense emergency hospitals. Title to these stocks is held by the Federal Government, except that custody of the prepositioned emergency hospitals is given over to the States by written agreements.

BULK STORAGE

The bulk medical stocks are warehoused at 29 civil defense medical depots operated by the General Services Administration (22), Veterans' Administration (1), and Department of Defense (6). Eight of these depots are in Pennsylvania and California (4 each), and the remaining 21 are located in 16 other States.

The need for wider distribution and protected storage of essential medical items is recognized by the Public Health Service. At present only one of the medical depots is underground, at Neosho, Mo., with a gross storage area of 214,000 square feet. At the time of the hearings, acquisition of an additional 250,000 square feet in two underground locations in western Pennsylvania was being negotiated. Maximum underground storage requirement is put at 2 million square feet. The General Services Administration is surveying all suitable underground storage locations throughout the country, such as abandoned limestone and salt mines and other types of rock quarries.

REDISTRIBUTION PROGRAM

Redistribution and dispersal of emergency medical supplies are to be accomplished largely through the civil defense emergency hospital program. Depot stocks that survive an attack will not be immediately accessible due to problems of communications, transport, and other massive disruptions of the economy. By selecting strategic locations for storage of emergency hospitals, and adding medical supplies to increase the operating capability of each hospital from 3 or 4 days to 30 days, the stockpile management agency hopes to effect the needed redistribution. Existing warehouse stocks or new procurement will provide the supplies for the expansion program. Addi-

tional storage requirements will be 1,665 cubic feet per hospital unit, which will double the storage space requirement for the total hospital unit.

EMERGENCY HOSPITALS

Presently there are 1,930 Federally acquired civil defense emergency hospitals. Of these 1,907 are prepositioned in the 50 States, the District of Columbia, Puerto Rico, and the Virgin Islands; 15 are in depots for rehabilitation and 8 are unassigned. Each hospital unit has a 200-bed treatment ward and all the essential supplies and equipment to run a hospital.

The planning goal is 9,500 hospitals, which would mean 1,900,000 beds at 200 per unit. Under procurement in fiscal year 1962 are 750, and another 750 are requested for 1963, which would bring the cumulative quantity to 3,430 units. Production leadtime is 12 to 18 months. Consequently, at this procurement rate, hardly more than one-third of the goal will be accomplished in the next few years, although additional hospitals are bought by the States with Federal matching funds. A limiting factor is the ability of the States to provide storage space.

The hospital units are stored in crated form near the buildings where they are to be assembled. Each hospital weighs 23,200 pounds and contains 295 different items of supplies and equipment packed in some 350 crates. Storage space per unit is 1,577 feet. Crates are arranged to facilitate inventory taking and inspection.

In case of emergency, the units will be assembled by local persons trained in accordance with an approved community disaster plan, which is a prerequisite for local placement of the hospital unit. The written agreements between the Federal Government and the custodial State set out the State responsibilities for storage, inspection, care, maintenance, and certification as to the condition of the hospital on a continuing basis. Parallel responsibilities are imposed upon the Federal Government. Storage areas, which are near to buildings in which the hospitals would be set up, must have complete protection from water and weather damage, fire hazards, and unauthorized access.

The testimony indicated that various deficiencies show up in the storage conditions. Insufficient space, improper heating or refrigeration, damage by insects and water, shelf life deterioration, and inadequate fire protection are some of the deficiencies. Adverse storage factors hasten deterioration. Some of the stockpile materials, including perishables, are 10 years old or more. The deterioration problem is a cumulative and growing one.

PLANNING ASSUMPTIONS

Medical stockpile goals are based on planning assumptions formulated under OCDM guidance in 1958. It is assumed that in a population of 180 million, there will be 60 million casualties, 12 million immediate deaths, which could increase to 34 million within 30 days, and more than 40 million at the end of 6 months. One-third of the initial casualties, or about 20 million, would survive beyond 6 months, but a majority of these would recover at some time within that period. Medical care demands would increase greatly in the first 6 months, not only because of mass casualties but because of inadequate sanitary

facilities, crowding, and other health hazards to uninjured survivors.

Production potentials and medical inventories would suffer severely in the attack. It is assumed that 88 percent of preattack inventory at manufacturers' sites, 94 percent at manufacturers' distribution points, 64 percent at wholesale houses, 51 percent at retail pharmacies, and 52 percent at hospitals, would be destroyed.

As now projected, the medical stockpile requirements for emergencies are put at $892 million. This would be composed of 9,500 emergency hospitals with a 30-day supply, valued at $427.5 million and backup reserves of essential medical supplies for a 6-month postattack period valued at $464.5 million. This estimate of stockpile needs assumes that approximately $140 million worth of essential medical items will be available after an attack from commercial inventories.

There are approximately 1,600,000 fixed hospital beds in the United States. The planning assumptions estimate that 600,000 of these would be destroyed, and another 600,000 would be denied use because of fallout radiation, leaving 400,000 for immediate use. The civil defense emergency hopsitals, being placed in selected locations, are expected to suffer much less loss. The estimate is that 90 percent of the emergency beds would be available for immediate use.

XIV. COMMITTEE COMMENTARY AND RECOMMENDATIONS

The Federal civil defense program, when measured by what has been done before, is a great step forward; when measured by what can be done and should be done for the protection of the American people, it falls short.

The committee is keenly aware of the national need and believes that the present program has a good potential for saving lives. We have gone on record several times previously for a system of civil defense protection considerably more extensive than the administration's program.

THE GREAT DEBATE

Since President Kennedy announced his decision, less than a year ago, to give new life and vigor to civil defense as a measure of vital national importance, there has been a great debate in public forums, in the newspapers, and in academic circles. The intensity of the debate, the passionate feelings evoked, suggested that the American people were going through the rather painful experience of adjusting to the harsh realities of the thermonuclear age.

There was uncertainty and confusion, due partly to the fact that many people did not understand what their Government proposed to do or what the Government expected them to do. There were angry voices which scored their Government for doing too little or doing too much. Inevitably the administration steered a course for civil defense somewhere in between. The exact route is yet to be charted although the general direction is known.

To a degree, public interest in civil defense will rise and fall with recurrent international crises and tensions. Civil defense must be built on a more stable foundation than the ebb and flow of public sentiment. If a crisis should occur that threatens imminent attack, the people of this country will inquire in a single loud voice what the Government has done to protect them. A wise administration—and a wise Congress— will not be caught unprepared, will not wait until it is too late.

PRESENT AND PROJECTED SHELTER PROGRAMS

The core of the present Federal civil defense program is a national shelter survey. Existing buildings, mines, tunnels, and other enclosures are being examined for shelter potentials. Those which measure up to minimum standards of protection, capacity, and livability will be marked and stocked with food and water and other necessities. Placement and inspection of supplies will be a responsibility of local civil defense agencies.

The best shelters in existing structures tend to be concentrated in the high-rise buildings in the downtown sections of large cities. To get more shelter space and better distribution, so that nighttime

residential as well as daytime working populations will have shelter access, the Office of Civil Defense proposes a shelter incentive program.

Federal contributions to the incremental costs of fallout shelter construction would be made to schools, hospitals, and welfare institutions. Each eligible agency would be offered up to $2.50 per square foot of shelter space for a minimum of 50 occupants.

This amount of incentive payment is based on the belief that many institutions will be able to put shelters in existing or new buildings if the larger share of costs is borne by the Federal Government. The average cost of incremental shelter construction is estimated at $4.00 per square foot of shelter space, so that the Federal contribution might average 60 percent. Lower-cost modifications might come within the range of 100-percent Federal financing.

Before the shelter incentive program can take effect, there must be authorizing legislation and appropriations. The Department of Defense is proposing a civil defense budget of $695 million for fiscal year 1963, of which $460 million is for the first year of the Federal incentive program. For fiscal year 1962 the Department received $255 million in appropriated and transferred funds.

Within the limitations of policy and budget imposed on the civil defense program, the Office of Civil Defense is doing an excellent job. The transfer of civil defense responsibilities to the Department of Defense was a wise move. It is paying dividends in better planning and performance. Assistant Secretary Pittman and his associates in the Office of Civil Defense are hard working, imaginative, dedicated to very important defense tasks. We take this opportunity to commend them.

New techniques of analysis in civil defense are being developed. New knowledge is being gained by research and development and experimentation. The technology base for civil defense is being made broader and more firm. These advances are constructive and deserve full support.

At the same time, the committee cautions the civil defense experts against being carried away by preoccupation with techniques. They should not lose sight of the larger goals of civil defense to be achieved. There are human values and institutional complexities which do not admit of adjustment or resolution by the computing machine.

FALLOUT PROTECTION GOAL

When Secretary McNamara outlined to the subcommittee in August 1961 his plan for a national shelter survey which would be finished in 1½ years, he suggested that future planning must wait on the results of the survey. In the meantime President Kennedy put forth a national goal of fallout protection for all Americans, and he urged Government at all levels and people individually or in organizations to cooperate in fulfillment of this goal.

In response to the President's declaration, the Office of Civil Defense now proposes that fallout shelters for all Americans be achieved in a 5-year period. The shelter resources are figured as follows:

Seventy million spaces in existing structures, of which 50 million would be gained by the national survey and 4 million a year thereafter.

One hundred million spaces through Federal incentive payments to local qualified institutions, with spaces coming in at the rate of 20 million a year.

Sixty million spaces through initiative of individuals, business firms, and other non-Federal (unsubsidized) sources at the rate of 12 million a year.

Three and one-half million spaces in Federal civil and military structures at the rate of 700,000 a year.

This adds up to 233½ million spaces for a 1967 population of 200 million people. The allowance for extra spaces takes into account daily shifts of population. The concept is that every American will have access to fallout shelter space in time of emergency, wherever he may be, at home or at work, in school or in transit.

We believe the administration is optimistic about the quantity and timing of shelter spaces to be derived from the national fallout shelter program. We refer particularly to the incentive features. Past experience suggests that local option and individual initiative, however commendable, will not spur extensive shelter building. Whether the modest incentives, which are yet to be authorized and funded, will make a significant difference, is yet to be seen. Assistant Secretary Pittman believes that a year of experience should be sufficient to show whether the incentive program will be effective. We propose to follow that program very carefully, and if expectations are not realized, we will assume that alternative and more effective means of getting shelter protection will be taken.

MINIMUM VERSUS OPTIMUM

Total costs for this 5-year fallout shelter program are figured at $5 to $6 billion, of which the Federal share is put at approximately $3 billion.

Compared to the huge defense budgets of recent years, a national shelter program which costs the Federal Government about $3 billion is very modest indeed. It is a cheap shelter program. This is so because the Federal program is a minimum program, considering the enormous destructive power of nuclear weapons and their specific effects. Although the Office of Civil Defense is conducting research in blast and thermal effects, in a policy and budget sense it draws the line at fallout shelters. Fallout protection is officially regarded as the only feasible kind of protection on a nationwide basis in case of nuclear attack.

The committee takes issue with this concept on several counts. The Federal civil defense program does not begin to approach either the technical or economic limits of feasibility. The Nation can afford to buy vastly more insurance for its people and property. The technology is available or within reach to support the economic effort.

In last year's civil defense report, we called for an optimum program rather than a minimum program. In our view, an optimum program would not necessarily be limited to fallout shelter protection, nor to a low degree of fallout protection, but would encompass blast and fire protection in varying measure where conditions of cost, location, and structure are manageable. In this connection we pointed out that not only are group shelters far more advantageous than family shelters, but that underground shelters are much more effective than above-ground shelters.

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The Office of Civil Defense, speaking for the administration, is not ready to endorse our concept of an optimum shelter program. It is sympathetic with the objectives, it will contribute research and analysis and technical assistance, but it does not favor a program of the magnitude and systematic achievement which we believe is necessary for an optimum civil defense.

In his testimony, Assistant Secretary Pittman summarized his objections to a large-scale shelter program encompassing blast protection. He feared it might turn into "a vast public works project." Federal planning, financing, and construction might result in an army of Federal employees for shelter training and management. Access to blast shelters would depend on effective warning and tight discipline to move people to the shelters on short notice. Underground structures in urban areas would be costly and difficult to build. The costs would be so high as to compete with missile systems and other important parts of our deterrent force. In planning for a blast shelter program of such size and cost, useful and important steps toward fallout protection might be too long delayed. In any case—Assistant Secretary Pittman argued—decisions on a blast shelter program should be deferred several years, until enough research has been done to establish lower, firmer costs.

It is not our intention to either minimize the costs and complexities of the civil defense effort we recommend, or to pretend that nuclear attack, even with the best conceivable protection, would not be terrible in its destruction. Nevertheless, we believe that, in defense of the official program, Assistant Secretary Pittman overstates the case against our position. We are convinced that fire and blast protection cannot be disregarded in civil defense planning. Technically a great deal can be done. Shelter systems against multiple effects can be developed. We have seen no convincing evidence that underground structures for metropolitan areas would be too difficult or costly to build, bearing in mind that the school playgrounds of the country are well distributed according to population and suggest promising shelter locations.

There is testimony in our previous hearing records that an effective civil defense program can be built for $20 billion. A $20 billion civil defense budget—$4 billion a year for 5 years—seems large in the abstract. Certainly it is overwhelming to those who want no part—or only a little part—of civil defense. And considering the meager Federal outlays for civil defense in the past, this would seem to be a monumental increase.

Here again we need perspective. We are talking about a budget for survival, and it is not easy to assign a dollar value to human lives and national existence. Traditional modes of thinking distort these values.

HIGH COST OF MILITARY DEFENSE

We write off easily a billion dollars worth of research for a discontinued nuclear airplane or winged missile like the Navaho, as part of the high cost of experimentation or technological obsolescence. Spending $50 billion a year for national defense is a commonplace fact of contemporary life. A man-to-the-moon project which may end up costing $10 or $20 billion invites our applause. A modest increase in the civil defense budget evokes a national debate and wild alarms.

We spend hundreds of millions—even billions—of dollars to gouge great holes in the earth and put our giant missiles in underground silos. We build underground fortresses for the command and control centers of our military chiefs and our civil defense officials. Our missiles are to be "hardened"; our combat and control centers likewise. But somehow it seems the accepted thing that the people, who are to be defended with the help of these elaborate underground defenses, will remain vulnerable and exposed.

Military budgets moved into the $50 billion range after the onset of the Korean war, which generated fears of global nuclear conflict. This was the time, too, when the Federal Civil Defense Act was passed. In the fiscal years 1951 through 1962, we will have spent nearly $600 billion for major military defense programs, but little more than one-thousandth of that amount will have been spent for civil defense.

These vast outlays for national defense are essential. They buy the retaliatory strike weapons and the other armament which we must have to deter war and resist aggression. Our deterrent strength is our first and best guarantee of peace. But it cannot save our people if the guarantee does not hold up—if deterrence fails.

Our $600 billion have not bought us any weapons, as yet, to shoot down incoming missiles. The Nike-Zeus project, on which the most antimissile work has been done, is still in the development stage. Even if this weapon system were produced in quantity and deployed at major industrial or military targets, at a cost of $10 to $15 billion, protection against enemy attack—once the attack is launched—still would be limited. In the final resort, civil defense is the barrier against obliteration.

Shielding is the barrier—shielding against fallout radiation and against blast and thermal effects. Shielding means shelters. Shelters are the key to an effective civil defense. In reports dating back to 1956, this committee has emphasized that point in loud and clear accents. Now that the call is heard—although still too dimly—we must plan and work even harder for an effective nationwide shelter system.

RECOVERY PLANNING

At the same time, we must recognize that shelter—the key to survival—merely opens the door to the recovery process in case of nuclear attack. Planning must be done on a massive scale for post-attack recovery—on a massive scale because the destruction would be massive.

These planning responsibilities fall to the Office of Emergency Planning and other departments or agencies. Our committee intends to find out what these agencies are doing, how effectively they are being coordinated, what they propose for the years ahead.

We will want to know whether civil defense and longer range planning for postattack recovery are effectively tied in, or whether they are developing overlaps and duplication of effort. We will be interested in finding out how these multiple-agency relationships affect the State and local resources for civil defense and emergency planning.

LOCAL AND PRIVATE PARTICIPATION

The Federal civil defense program, as presently planned and executed, depends in large measure on local agencies and resources to perform the day-to-day civil defense tasks. Shelter management, for example, looms large in the local sector of responsibilities. Civil defense personnel in towns and cities will have to negotiate license agreements with property owners who have shelter space suitable for the public. The civil defense or other local units of government will have to install and inspect shelter supplies and equipment and train persons for shelter operation. In these and many other ways, the State and local civil defense organizations will support and give effect to national programs for civil defense.

The responsibilities thrust upon the State and local civil defense organizations are larger than ever before. The committee urges the Federal Government to assist and encourage in every proper way the development of strong civil defense cadres in State and local units of government.

Hundreds of thousands of property owners and managers will be called upon to make shelter space in their building available as a public service to their communities and as a means of protection to their fellow citizens in times of mortal danger. The committee believes that property owners and managers who sign license agreements giving the public emergency access to their shelter areas will be rendering a real, valuable, and enduring service to their country. We urge all of them to cooperate with their Government and to promote the cause of civil defense.

Although the committee has definite reservations, as stated above, on the shelter program as now planned, we desire to place no obstacle in the way of protective measures that will save American lives. The following recommendations based upon extensive investigations, studies, and the present report, are made in a constructive spirit, not only to improve civil defense, but to effect savings wherever possible

RECOMMENDATIONS

1. Civil defense leadership (general)

Progress in civil defense depends on vigorous, sustained leadership by the President and full support by the Congress. The President's leadership is crucial for the corresponding exercise of leadership by State and local government heads and for the effective performance of civil defense functions at all levels of government. We recommend that the President give due and careful attention to civil defense and publicly emphasize its importance from time to time, bearing in mind that the Congress has vested in him directly statutory responsibility "to provide a system of civil defense for protection of life and property in the United States from attack."

2. Optimum shelter program (pp. 72, 89)

(*a*) Analyses of hazard probabilities and damage should be carried forward, not only on the basis of varying attack assumptions, but on assumptions of varying levels and kinds of shelter protection—including protection against blast and thermal as well as fallout effects—in order to determine an optimum shelter program for the United States.

(*b*) The assumptions and basic data underlying hazard probability studies should be declassified to the greatest extent compatible with national security, so that the public may better understand the nature of the threat and the consequences of nuclear attack. At the least, the results of classified studies and analyses should be prepared in unclassified format and provided in varying degrees of detail to the public, State and local civil defense organizations, and other institutions, for their guidance and planning.

3. Survey contracts (*p. 13*)

The committee renews its recommendation of last year that continual vigilance be exercised in awarding and administering contracts for shelter surveys, and that the necessary data be gathered in a timely and effective way to avoid duplication and unessential work.

4. Research needs (*p. 70*)

In view of constantly changing weapon technologies and enemy capabilities, we believe it is highly important to point civil defense research toward future as well as present civil defense needs. The committee supports the civil defense research and development program and recommends that it be continued on a sustained high level.

5. Training and education (*p. 56*)

(*a*) The committee views as highly important the Public Health Service program for training the citizenry in medical self-help in emergency periods when professional care will not be readily available, and recommends that it be promoted with realistic and useful training aids. We call upon the physicians and allied medical workers of the country and upon the citizenry to cooperate in this valuable program.

(*b*) The use of college and university resources for professional instruction and training in civil defense matters is commendable and should be developed.

(*c*) Instruction of high-school teachers in basic nuclear physics, characteristics of radiation, and civil defense techniques, should be promoted throughout the country.

6. Public information (*p. 51*)

(*a*) The screening and recall of obsolete or otherwise useless civil defense literature, film tapes, and other informational material should be relentlessly pursued. Military and civil agencies of Government, at all levels, should be asked to cooperate in the screening process.

(*b*) In addition to technical bulletins for the use of business and professional groups, the Office of Civil Defense should issue readable and informative reports on civil defense to the general public.

7. Home warning system (*p. 63*)

The consensus of expert judgment is that an indoor home warning system is a highly important civil defense measure. The Office of Civil Defense has found that the most reliable, economic, and efficient system is the NEAR (for National Emergency Alarm Repeater), based on transmission of power signals to home receivers. Problems of financing and managing the procurement and installation of home warning devices have been under consideration for many months. The committee recommends that the Office of Civil Defense make a timely decision in the matter. The electrical utilities are urged to

cooperate with their Government in effecting the necessary arrangements for an operational home warning system.

8. State-local civil defense (p. 75 ff.)

(*a*) State and local civil defense organizations should be strengthened and transformed to the greatest possible extent into professional working teams with Federal assistance through funds, training, and equipment.

(*b*) Statutory dollar ceilings on Federal payments and contribution for these purposes in section 6 of Public Law 85–606 should be reevaluated, and eliminated if necessary, to accomplish the objectives in (*a*) above.

(*c*) Contributions of funds and equipment and donations of property for civil defense purposes should be geared strictly to these purposes in accord with priorities in the Federal program, and all necessary administrative steps should be taken to effect compliance with Federal criteria and requirements for donations and assistance.

The committee suggests that State and local authorities selectively emphasize the development of those civil defense capabilities and resources which will enable them to cooperate most effectively with the national civil defense effort.

9. Emergency medical supplies (p. 82 ff.)

(*a*) Public Health Service plans for rotation of perishable stocks in the emergency medical stockpile should be expanded and vigorously pursued.

(*b*) A timely, systematic program for eliminating the backlog of deteriorated medical stocks should be supported by the Congress.

(*c*) The effectiveness of State custody and care of civil defense emergency hospitals and related medical supplies should be carefully evaluated in considering applications for additional emergency hospitals.

(*d*) The committee stresses the importance of local training programs for effective use of emergency hospitals and recommends that the Public Health Service take steps to insure the adequacy of these programs and their direction by responsible local training officers.

10. Emergency processed foods (p. 81)

The Department of Agriculture should develop a plan for the use of processed foods in emergencies and establish a test program to determine the cost and administrative feasibility of integrating emergency food requirements with other departmental food programs.

VIEWS OF HON. PORTER HARDY, JR.

In the preparation of this report and during the investigation in connection with it, the subcommittee has assembled a mass of information which relates not only to the performance of the administrative agencies involved but which bears on future decisions of the Congress with respect both to authorizations and appropriations. This information should be extremely helpful to the legislative and Appropriations Committees having jurisdiction, as well as to all Members of the Congress when they consider providing a more adequate program for the protection of the civilian population in the event of a nuclear attack. I compliment the subcommittee for its timely assembly of this data and the presentation of it in this report. However, in reviewing this report prior to its consideration for approval by the full Committee on Government Operations, I had some misgivings about section XIV, "Committee Commentary and Recommendations." A first reading of this section left me with the impression that the subcommittee had concerned itself primarily with future congressional policy rather than with the operational performance of the administrative agencies in the expenditure of current and previous appropriations and in the discharge of congressional policy heretofore established.

The Committee on Government Operations is a legislative committee and like other legislative committees, it has jurisdiction over certain specific legislative measures. Civil defense is not one of these. Unlike other standing committees of the House, the Committee on Government Operations has broad investigative authority over all agencies of Government also.

The Legislative Reorganization Act and rule XI of the House of Representatives assign to this committee the duty (among others) of "studying the operation of Government activities at all levels with a view to determining its economy and efficiency" and "evaluating the effects of laws enacted to reorganize the legislative and executive branches of the Government." Under the directives of the act and the House Rules, the Committee on Government Operations is the standing investigative committee of the House. From these authorities, it is my view that there is a direct charge to the committee to make findings and recommendations with respect to deficiencies in operations as well as defects in reorganizations which have been effected in the executive branch. It also seems appropriate to me that the Committee on Government Operations point out to the membership of the House generally, and to the Appropriations Committee and the appropriate legislative committees specifically, those facts developed in the course of investigations which are significant for consideration when appropriations measures are pending or when congressional policy revisions are needed.

It seems to me that section XVI of this report too strongly injects the Committee on Government Operations into the policymaking field. It begins with the statement that—

> The Federal civil defense program, when measured by what has been done before, is a great step forward; when

> measured by what can be done and should be done for the protection of the American people, it falls short.

This is a comment directed toward a national defense policy. It has nothing to do with matters under the legislative jurisdiction of the committee or with the economy and efficiency of Government activities, reorganization laws, or intergovernmental relationships.

I do not impute to the subcommittee any intent to overstep its authority and indeed, while this report was being considered in the full committee, the subcommittee chairman disclaimed any such intent. I pointed out to the committee specific sections which seemed to me needed to be modified not with respect to substance but with respect to wording. The last paragraph on page 89 puts the entire Government Operations Committee in the position of recommending unequivocally a civil defense program embracing protection against fallout, blast, and fire. It may be that those members of the subcommittee who participated in all the hearings and studied all the testimony are in a position to make such a recommendation individually. Regardless of their competence, the exercise of such a judgment is an individual prerogative and this committee should present its facts and suggestions to the appropriate legislative committee for fuller study and evaluation and for the reporting of legislation which it deems to be appropriate.

I call attention also to recommendation No. 4 and while I subscribe wholeheartedly to the first sentence in that recommendation, it seems to me that the second sentence should have been phrased differently. That sentence has the effect of putting the full Government Operations Committee in the position of recommending "a sustained high level" of appropriations. Instead it seems to me that the committee should have recommended to the Committee on Appropriations a careful study of this particular subject to make certain that it is continued at the level of magnitude which the facts before that committee justify. The Committee on Appropriations might develop data additional to that on which this report is based and as a consequence, a different level of research effort—either more or less—might be desirable.

There are a number of other points of a similar nature but I call attention to only one more—recommendation 8(a). I could subscribe to this if it were a recommendation for consideration by the Appropriations Committee and/or an appropriate legislative committee. Instead, it puts the Committee on Government Operations in the position of making a flat recommendation to the Congress of a Federal program of assistance to State and local civil defense organizations which are neither authorized nor funded.

In my opinion, the points which I have raised are valid and should have been corrected before this report was issued. I regret that prior to the meeting on May 24, I had not prepared specific word changes to suggest, but I had thought, mistakenly, that the subcommittee chairman and the members of the subcommittee would have been amenable to adjusting the phraseology of the report. This could have been done without any adverse effect on the significance and impact of the report and it would have avoided the likelihood that, as expressed, the report may give substance to the spurious contention that the Government Operations Committee exceeds its authority and trespasses upon the prerogatives of other standing committees.

ADDITIONAL VIEWS OF HON. GEORGE MEADER, HON. ODIN LANGEN, AND HON. JOHN B. ANDERSON

The majority seems to feel that mere reiteration (report, p. 90) of its proposal will make the case for its $20-billion federally financed shelter program. We are being offered the same arguments for the sixth time—twice in this Congress—in support of a proposal first presented in 1956. We could not in good conscience support it then and we cannot now. Minority members have expressed reservations and dissenting opinions each time the proposal has been presented (H. Rept. No. 2946, 84th Cong., 2d sess., July 27, 1956; H. Rept. 839, 85th Cong., 1st sess., July 22, 1957; H. Rept. No. 1874, 85th 85th Cong., 2d sess., June 12, 1958; H. Rept. No. 2554, 85th Cong., 2d sess., Aug. 12, 1958; H. Rept. No. 2069, 86th Cong., 2d sess., July 1, 1960; H. Rept. No. 1249, 87th Cong., 1st sess., Sept. 21, 1961).

The undersigned reaffirm the position stated in the additional views accompanying the reports referred to above.

GEORGE MEADER.
ODIN LANGEN.
JOHN B. ANDERSON.

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